

STATE OF VERMONT  
PUBLIC SERVICE BOARD

DOCKET NUMBER 7970

PETITION OF VERMONT GAS SYSTEMS, INC.,  
REQUESTING A CERTIFICATE OF PUBLIC GOOD,  
PURSUANT TO 30 V.S.A. SECTION 248,  
AUTHORIZING THE CONSTRUCTION OF THE "ADDISON  
NATURAL GAS PROJECT" CONSISTING OF  
APPROXIMATELY 43 MILES OF NEW NATURAL GAS  
TRANSMISSION PIPELINE IN CHITTENDEN AND  
ADDISON COUNTIES, APPROXIMATELY 5 MILES OF  
NEW DISTRIBUTION MAINLINES IN ADDISON  
COUNTY, TOGETHER WITH THREE NEW GATE  
STATIONS IN WILLISTON, NEW HAVEN, AND  
MIDDLEBURY, VERMONT.

September 20, 2013  
9:30 a.m.

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100 State Street  
Montpelier, Vermont

Technical Hearing held before the Vermont Public  
Service Board, at the Montpelier Room, Capital Plaza  
Hotel, 100 State Street, Montpelier, Vermont, on September  
20, 2013, beginning at 9:30 a.m.

P R E S E N T

Board Members:       James Volz, Chairman  
                          David C. Coen  
                          John D. Burke

Staff:               George E. Young, Policy Director  
                          June E. Tierney, General Counsel  
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1           CHAIRMAN VOLZ: Good morning. We're  
2 here this morning in Docket Number 7970 before  
3 the Vermont Public Service Board which is the  
4 petition of Vermont Gas to expand their  
5 pipeline system south into Addison County. I  
6 would like to start by taking notices of  
7 appearance.

8           MS. PORTER: Louise Porter and Tim  
9 Duggan for the Department of Public Service,  
10 and with us today is George Nagle, a Finance  
11 and Economics Utilities Analyst.

12          MS. LEVINE: Sandra Levine, Conservation  
13 Law Foundation.

14          MS. DILLON: Judith Dillon on behalf of  
15 the Vermont Agency of Natural Resources.

16          MR. SAUDEK: Richard Saudek for the  
17 Vermont Fuel Dealers Association.

18          MS. ZAMOS: Diane Zamos on behalf of the  
19 Vermont Agency of Agriculture, Food and  
20 Markets.

21          MR. DIAMOND: Joshua Diamond on behalf  
22 of the Town of Monkton.

23          MR. SCIARROTTA: Mark Sciarrotta for  
24 VELCO, and with me today is Peter Lind, Senior  
25 Project Manager.  
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1 MR. PALMER: Nathan and Jane Palmer.

2 MS. FLORES: Julia Flores with Burak,  
3 Anderson & Melloni for Chittenden Solid Waste  
4 District.

5 MS. HAYDEN: Kimberly Hayden, Downs  
6 Rachlin Martin. With me is Eileen Simollardes  
7 and Mark Teixeira of Vermont Gas Systems,  
8 Charlie Pughe of Vermont Gas Systems, Mike  
9 Flock of CHA, John Heintz of CHA on behalf of  
10 Vermont Gas Systems, Joel Bluestein of ICF  
11 International who will be a witness today, and  
12 also from Downs Rachlin Alison Stone, Karen  
13 Shufelt, and Danielle Changala is in the back  
14 observing.

15 THE CHAIRMAN: Great. Thank you. So my  
16 understanding is we're going to start with Mr.  
17 Heintz with the questions the Board had for  
18 him.

19 MS. HAYDEN: Yes.

20 CHAIRMAN VOLZ: Great.

21 BOARD MEMBER COEN: Mr. Heintz, I remind  
22 you, you are still under oath.

23 MR. HEINTZ: Yes, sir.

24 MR. YOUNG: Good morning, Mr. Heintz.

25 Welcome back.  
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1 MR. HEINTZ: Good morning.

2 MR. YOUNG: Let me start with the easy  
3 one. The question came up yesterday about the  
4 construction plans for Vermont Gas Systems in  
5 areas of prime agricultural lands.

6 MR. HEINTZ: Yes.

7 MR. YOUNG: And you're aware of the  
8 general nature of the inquiry. The basic  
9 question was what -- how wide is the area in  
10 which you're clearing topsoil in prime ag  
11 lands?

12 MR. HEINTZ: We clear and segregate  
13 topsoil in the entire corridor that will be  
14 disturbed whether it be 50 foot or 75 foot,  
15 but it's the entire work corridor.

16 MR. YOUNG: And so you would -- so --  
17 and that's only in prime ag lands. In other  
18 lands you're just doing the trenching,  
19 correct?

20 MR. HEINTZ: That's correct.

21 MR. YOUNG: And so you're removing the  
22 entire 75 foot down to any particular depth?  
23 A foot? Two feet?

24 MR. HEINTZ: It depends on the depth of  
25 the topsoil.

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1           MR. YOUNG: And you're stockpiling that  
2 within the right-of-way?

3           MR. HEINTZ: Correct.

4           MR. YOUNG: Is that typically covered  
5 within the right-of-way where you're  
6 stockpiling it or not?

7           MR. HEINTZ: It is not covered.

8           MR. YOUNG: Just for curiosity since it  
9 was raised by some of the witnesses if that  
10 gets wet is it difficult to reapply that and  
11 redistribute it evenly when you're trying to  
12 do the restoration after you have done the  
13 construction?

14          MR. HEINTZ: It hasn't presented a  
15 problem in my experience in the past.

16          MR. YOUNG: Move on to the next topic  
17 which is I'm going to ask you to pull out  
18 exhibit Petitioner Surrebuttal EMS 1 please,  
19 and I think this will be useful because this  
20 will be the primary discussion topic.

21          MR. HEINTZ: Okay.

22          MR. YOUNG: I think we have heard a lot  
23 of testimony and I know you testified about  
24 the route earlier in this area, but after  
25 hearing from other witnesses I think the Board  
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1 had a number of other questions about what  
2 exactly you examined as a possible route  
3 through this area if you stayed within the  
4 corridor and what other options there may be,  
5 and, I'm sorry, when I say corridor I meant  
6 the existing right-of-way that VELCO has.

7 So let me start with at one time you did  
8 have a proposal for routing the line that  
9 would have stayed within the VELCO corridor;  
10 is that correct?

11 MR. HEINTZ: That's correct.

12 MR. YOUNG: And if you can -- I know you  
13 have done this before, but if you can explain  
14 exactly where that would have gone again, that  
15 would be helpful before we get into the next  
16 set.

17 MR. HEINTZ: Sure. In the 12/20  
18 proposal we were originally running in this  
19 section along the 10 foot outside of the VELCO  
20 right-of-way.

21 CHAIRMAN VOLZ: From north to south?

22 MR. HEINTZ: From north to south.

23 MR. YOUNG: And just when you're saying  
24 this section, since transcripts don't  
25 translate well, you're referring to the  
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1 north-south oriented part of the line that  
2 essentially runs from -- I'm looking here on  
3 the VELCO system -- pole 180 through 186?

4 MR. HEINTZ: That's correct. So from  
5 pole -- about between centerline between pole  
6 180 and 181 we're running 10 foot outside of  
7 the VELCO corridor. Then we are going to  
8 directionally drill across this ravine and  
9 across an archaeological site, come out on the  
10 other side, of the east side we'll call it, of  
11 the VELCO corridor. At that point the  
12 original proposal was to run a hundred feet  
13 off of the VELCO structures off their towers.

14 CHAIRMAN VOLZ: The existing towers?

15 MR. HEINTZ: The existing towers which  
16 puts us about in the middle of this here, of  
17 this width on the east side of the towers. So  
18 we're running roughly down the center.

19 CHAIRMAN VOLZ: Of the VELCO  
20 right-of-way?

21 MR. HEINTZ: Of the VELCO right-of-way.

22 MR. YOUNG: And the segment you're  
23 talking about is the part that runs northerly,  
24 northeast to southwest from VELCO pole 186  
25 down to approximately between 190 and 191?  
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1           MR. HEINTZ: That is correct. The idea  
2 was then to continue through -- continue along  
3 the VELCO corridor and continue along the west  
4 side as we passed structure number 189 and I  
5 believe there's a structure here. I don't see  
6 a label on it, but it's called out on the  
7 figure as the location or where the VELCO guy  
8 wires are. At that point we would cross over  
9 to the west side of the VELCO corridor and  
10 continue south.

11           CHAIRMAN VOLZ: Again 10 feet inside the  
12 VELCO right-of-way?

13           MR. HEINTZ: In the original proposal --  
14 I may have to check my papers. I think in the  
15 original proposal we were 10 feet outside.

16           CHAIRMAN VOLZ: 10 feet outside?

17           MR. HEINTZ: Yes. I just want to  
18 confirm that. Yes. It is outside.

19           CHAIRMAN VOLZ: Thank you.

20           MR. YOUNG: And when you say original  
21 proposal are you referring to the original  
22 December proposal, correct?

23           MR. HEINTZ: Yes. The 12/20 proposal.

24           MR. YOUNG: And now you just stated on  
25 that first segment the north-south oriented  
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1 segment starting around post 180 -- between  
2 180 and 181 you said you were 10 feet outside  
3 of the VELCO right-of-way in that segment  
4 also; is that correct?

5 MR. HEINTZ: That is correct.

6 MR. YOUNG: And you wouldn't actually do  
7 any boring in there until you got near the  
8 deep ravine; is that correct?

9 MR. HEINTZ: That is correct.

10 MR. YOUNG: And that area on the map  
11 seems to be indicated as being archeologically  
12 sensitive, but you still didn't have to bore.  
13 You could manage the archaeological  
14 sensitivity within that area?

15 MR. HEINTZ: Well we needed further  
16 investigation to determine exactly if we were  
17 going to do a Class III investigation with  
18 archeology or we were going to drill it. When  
19 we made the original determination this was  
20 going to be open cut through here. There was  
21 a major archaeological site, although this all  
22 has sensitivity, it's not shown on this map  
23 which has significance, and the site that was  
24 significant is down near the ravine.

25 So what was going to happen is we were  
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1 going to directionally drill the significant  
2 archaeological site along with the ravine.

3 MR. YOUNG: And I believe from the  
4 earlier testimony, and please correct me if  
5 I'm wrong, that either you or one of the other  
6 VGS witnesses had indicated that because of  
7 the directional drilling had you followed the  
8 December proposed route it was a couple  
9 million dollars more than the reroute that is  
10 the February proposal; is that correct?

11 MR. HEINTZ: The proposal that I'm  
12 discussing at the moment would not require  
13 drilling for this intermittent and meandering  
14 stream.

15 MR. YOUNG: And you're referring to the  
16 stream that runs approximately from pole 181  
17 through 184?

18 MR. HEINTZ: That is correct. So the  
19 cost, if we stayed on the outside of the VELCO  
20 corridor through this section and just drilled  
21 this section, the cost would be roughly half  
22 of the amount that was cited earlier.

23 MR. YOUNG: But it would still be higher  
24 than where you have now proposed in February?

25 MR. HEINTZ: That is correct.  
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1 MR. YOUNG: Okay.

2 BOARD MEMBER COEN: A couple  
3 clarifications. I want to make sure I  
4 understand. So in the first section you're 10  
5 feet inside the VELCO corridor or outside?

6 MR. HEINTZ: In the first section as  
7 proposed we're 10 foot outside.

8 BOARD MEMBER COEN: Why outside rather  
9 than inside? Why not be in the corridor?

10 MR. HEINTZ: Sure. Our original  
11 discussions with VELCO at that time at the  
12 beginning of the project they indicated that  
13 they were very comfortable with us paralleling  
14 the right-of-way, but they requested that we  
15 stay outside of it. It was only later in the  
16 evolution of the relationship that we were  
17 allowed to then place the pipe inside the  
18 corridor, and it's only in the most recent  
19 discussions within the past couple of weeks  
20 that there's been discussion of allowing us to  
21 be in sections on the east side.

22 During our discussions with VELCO to  
23 date there has always been a reluctance, a  
24 very strong, strong preference for us to not  
25 be anywhere on the east side of their  
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1 corridor, and in fact we've only got a couple  
2 of spots, very short distances, where we had a  
3 lot of conflicts that we're allowed to be on  
4 the east side as the proposal now stands.

5 BOARD MEMBER COEN: Okay, and then when  
6 you come out of the ravine after the drilling  
7 you're in the middle of the right-of-way?

8 MR. HEINTZ: The original --

9 BOARD MEMBER COEN: That was the  
10 proposal?

11 MR. HEINTZ: It was the middle. It was  
12 the center point roughly between the structure  
13 and the edge of the right-of-way on the east  
14 side.

15 CHAIRMAN VOLZ: East edge of the  
16 right-of-way?

17 MR. HEINTZ: Yes, and in our discussions  
18 at that time actually on 12/21 we had a  
19 meeting with VELCO and they expressed a lot of  
20 concern for us being in that location.

21 MR. YOUNG: I want to follow up on a few  
22 things, but let me ask one question. Vermont  
23 Gas, at least as you're explaining it, seemed  
24 to start with the premise that you had to  
25 accept VELCO's preferences. Is there any  
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1 particular reason -- I mean you have an  
2 established utility corridor. You have an  
3 established line. Is there any particular  
4 reason that when approaching this you said --  
5 you didn't say co-locating makes sense, we're  
6 going to propose it and VELCO can deal with it  
7 and we'll talk to the Board about it?

8 MR. HEINTZ: Well I think that our first  
9 preference was to try to work with VELCO. I  
10 mean it is -- it's a corridor that they had  
11 expressed to us they had plans to utilize in  
12 the future, and we wanted -- our first  
13 position was to cooperate with them. They had  
14 been a team member, if you will, from the very  
15 start. VELCO is represented at our weekly  
16 meetings. They are aware of everything that  
17 we're doing every week on the project. We've  
18 shared our drawings. We share our line lists.  
19 We share all the information that we have with  
20 VELCO on this project.

21 MR. YOUNG: But it wasn't until a lot of  
22 the February reroutes that you started placing  
23 10 feet within the VELCO right-of-way. It  
24 took that long into the project before you  
25 could get them to agree to accept some degree  
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1 of co-location?

2 MR. HEINTZ: I think that's accurate.

3 MR. YOUNG: Now getting back to siting  
4 options did you look at the idea of siting 10  
5 feet from the east side as opposed to 10 feet  
6 from the west side of the right-of-way?

7 MR. HEINTZ: As we -- as I stated  
8 previously in my testimony what we try to do  
9 when we site is we balance all of the factors  
10 that we have before us, and when we spoke with  
11 VELCO and also received feedback from other  
12 constituents of the project, mainly the Town  
13 of Monkton, with regard to the location of the  
14 line we took into consideration the fact that  
15 if we move the line within VELCO, even if we  
16 moved it 10 feet off of their right-of-way  
17 corridor, the right-of-way line, that puts us  
18 in close proximity to two landowners.

19 With our alternative as currently  
20 proposed we are 160 feet if we directionally  
21 drill it from Mr. Palmer's. So -- and that  
22 was part of the consideration.

23 BOARD MEMBER BURKE: Well, Mr. Heintz,  
24 you didn't -- originally you weren't 160 feet  
25 from Mr. Palmer's.  
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1 MR. HEINTZ: 125.

2 BOARD MEMBER BURKE: Thank you.

3 MR. HEINTZ: The distance if we're 10  
4 foot inside the VELCO corridor, we are  
5 approximately 45 feet from this dwelling and  
6 approximately 25 feet from that dwelling.

7 MR. YOUNG: So that was -- because of  
8 that proximity you did not consider seriously  
9 on the -- and we're talking about here the  
10 northeast -- the segment runs northeast to  
11 southwest, you did not seriously consider  
12 placing it on the southeastern edge of that  
13 approximately 10 feet off; is that correct?

14 MR. HEINTZ: Yes, and I should be clear  
15 that it was the team's understanding, Vermont  
16 Gas's understanding, that even that location  
17 on the east side of VELCO would not be  
18 acceptable to VELCO.

19 BOARD MEMBER COEN: If you -- if it was  
20 sited where you had originally proposed down  
21 the middle of the VELCO corridor, how many  
22 feet would it have been off those residences?

23 MR. HEINTZ: It would be approximately  
24 135 feet from this most northern dwelling and  
25 115 feet from the McGuinness property.  
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1           CHAIRMAN VOLZ: I would like to ask you  
2 to respond to a particular question that's  
3 sort of what Mr. Young is getting at with you.  
4 I would like to frame it slightly differently.

5           So you made a proposal in December that  
6 included going down the middle of the VELCO  
7 right-of-way on that northeast-to-southeast  
8 section there. What were all the reasons that  
9 went into deciding to change that to the route  
10 you're now proposing?

11          MR. HEINTZ: The reasons that went into  
12 it for the modification were the reluctance of  
13 VELCO to be in that location which they made  
14 very clear on 12/21.

15          MR. YOUNG: And what were their reasons?

16          MR. HEINTZ: Their reasons were future  
17 buildout of their facilities.

18          CHAIRMAN VOLZ: That you might be in  
19 their way?

20          MR. HEINTZ: Correct.

21          MR. YOUNG: Just -- I'm sorry. I don't  
22 want to interrupt you, but just to follow up  
23 were they saying if you were in the middle  
24 there was not space to put a second line in or  
25 it would just be more difficult? I mean given  
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1 -- especially given the proximity of the  
2 houses just outside that right-of-way?

3 MR. HEINTZ: I never got the exact  
4 reasoning except that it was not their  
5 preference and that they had plans for  
6 expansion through there. They do have a  
7 requirement that we've been following  
8 throughout the project is that we have to  
9 maintain a minimum of 50 feet from their  
10 structures. So with that proposed alignment  
11 it's possible, I don't know, I haven't seen  
12 the plans, that that would have been in  
13 conflict.

14 BOARD MEMBER COEN: Well the structures  
15 would have to be apart anyway by a certain  
16 number of feet.

17 MR. HEINTZ: Yes.

18 CHAIRMAN VOLZ: But when you say it  
19 would be a conflict you're saying you proposed  
20 putting the line down the middle a hundred  
21 feet from the existing structures, but the  
22 conflict might arise if they wanted to put in  
23 new structures on the other side on the  
24 southeast side of your pipe in what remained  
25 of their right-of-way at that point, then your  
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1 pipe might be within 50 feet of the new  
2 structure. Is that the point?

3 MR. HEINTZ: That's my understanding.

4 CHAIRMAN VOLZ: Okay. Thanks.

5 MR. HEINTZ: So we looked at -- as part  
6 of our evaluation we look at impacts to  
7 landowners. We look at impacts to natural  
8 resources through this corridor. We had a  
9 significant archaeological site. We had a  
10 deep -- have a ravine and a stream. We also  
11 look at cost.

12 This route, this 12/20 route, especially  
13 given the feedback that we received from VELCO  
14 represented additional cost to the proposed  
15 alternative.

16 MR. YOUNG: One other curiosity  
17 question. Your December proposal was, as you  
18 described, a hundred feet off the VELCO line  
19 in that angle, that south --  
20 northeast-to-southwest oriented portion of the  
21 corridor. You selected that even after  
22 talking to VELCO, having considerations,  
23 taking into account their concerns.

24 I realize you just said you had a  
25 meeting December 21st because after they saw  
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1 where you actually placed it they had more  
2 concerns, but you had taken those -- all these  
3 into account and you still proposed to site it  
4 there in December. Why?

5 MR. HEINTZ: Yes. Because the route had  
6 been shared with VELCO right up until the  
7 submittal date. They were aware of our  
8 routing because they had, like I said, a  
9 representative at our weekly meetings. We  
10 thought that in this limited section, the  
11 short location where it would be co-locating  
12 within the center on the east side that it was  
13 okay. On 12/21 we found out differently.

14 CHAIRMAN VOLZ: But you had shared that  
15 location with them prior to your filing?

16 MR. HEINTZ: Yes.

17 CHAIRMAN VOLZ: Okay. Thank you.

18 BOARD MEMBER COEN: Mr. Heintz, you have  
19 some history of siting gas pipelines across  
20 the country?

21 MR. HEINTZ: Yes, I do.

22 BOARD MEMBER COEN: Do you have a  
23 history of siting them in transmission  
24 corridors?

25 MR. HEINTZ: Yes, I do.  
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1           BOARD MEMBER COEN: Have you ever sited  
2 one in a corridor that has two transmission  
3 lines like a 115 or 345 side by side? Have  
4 you ever sited it down the middle?

5           MR. HEINTZ: I have not. I have sited  
6 lines in existing electric transmission line  
7 corridors, but never down the middle between  
8 two structures.

9           BOARD MEMBER COEN: Okay. Have you  
10 attempted to do that?

11          MR. HEINTZ: No. I haven't had the need  
12 to try to do that.

13          BOARD MEMBER COEN: So you have never  
14 heard an argument one way or the other as to  
15 why that was a good or bad idea?

16          MR. HEINTZ: I'm trying to just jog my  
17 memory if I know of any locations where that  
18 exists and I don't have that off the top of my  
19 head. I don't have a recollection of any  
20 pipeline that I'm aware of that runs between  
21 two structures. However, with that said, it's  
22 -- in my opinion it's not an obstacle that we  
23 couldn't overcome with mitigation for stray  
24 currents and things like that. So I think  
25 that it would be possible to run a pipeline  
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1 between two structures.

2 BOARD MEMBER COEN: Here's a  
3 hypothetical. If this Board decided to grant  
4 the pipeline but one of the conditions was  
5 that any crossing of Mr. Palmer's line would  
6 have to be 300 feet from his house, how would  
7 you handle that?

8 MR. HEINTZ: If we needed to maintain  
9 the 300 foot distance from the Palmers, with  
10 all things being considered, including the  
11 uncertainty around getting a variance on the  
12 conservation easement that's located on Mr.  
13 Palmer's property, then I would probably  
14 advocate for going back to the VELCO corridor  
15 and proposing an alternative over there.

16 BOARD MEMBER COEN: Thank you very much.

17 CHAIRMAN VOLZ: Yeah, but I just thought  
18 I heard you say if you go down the middle of  
19 your corridor, your distances from homes is  
20 not 300 feet, it's a hundred something feet.

21 MR. HEINTZ: Yes, but I think he said  
22 Mr. Palmer.

23 BOARD MEMBER COEN: But those homes  
24 along the corridor are built right up to the  
25 corridor line, is that correct, after it was  
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1     there?

2             MR. HEINTZ:   That is -- yes.   That's  
3     what I've been told.

4             BOARD MEMBER COEN:   Thank you.

5             MR. YOUNG:   And just following up when  
6     you said you were going to -- would propose an  
7     alternative, would that be something other  
8     than what you originally had in the December  
9     proposal?   I mean might that be rather than a  
10    hundred feet off the line something more like  
11    75 or 50 feet off the existing line?

12            MR. HEINTZ:   It could be.   Yes.

13            BOARD MEMBER BURKE:   Mr. Heintz, since  
14    you have experience here do you understand the  
15    concept of coming to the nuisance?   Do you  
16    understand that concept in general?

17            MR. HEINTZ:   Not entirely.

18            BOARD MEMBER BURKE:   Well then let me  
19    ask it this way.   Does it matter to you as you  
20    look at locations whether or not the  
21    structures are there and now being encumbered  
22    by the location or whether as an existing  
23    right-of-way that people came to that  
24    right-of-way to begin with knowing it was  
25    there.   Does that matter to you at all as you  
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1 evaluate?

2 MR. HEINTZ: Yes, it does factor in.  
3 Yes which is, if I could add, it is one of the  
4 reasons that we look at existing corridors,  
5 whether they be transportation or utility  
6 corridors, to site gas lines.

7 BOARD MEMBER BURKE: Now here Mr.  
8 Palmer's -- I'm going to use him because of  
9 course that's what we talk about most of the  
10 time we talk about this location. Clearly  
11 you're bringing the pipeline to the Palmer  
12 property under the existing proposal. In the  
13 right-of-way you would be close to two other  
14 houses if you stay in the existing corridor  
15 for the VELCO right-of-way. Do you know  
16 whether those structures and the owners of  
17 them predate the right-of-way or did they in  
18 fact come knowing that the right-of-way for  
19 VELCO existed there? Do you know that? Did  
20 you do that kind of due diligence?

21 MR. HEINTZ: Yes.

22 BOARD MEMBER BURKE: And what did you  
23 find out?

24 MR. HEINTZ: Our research tells us that  
25 they were there after the corridor had been  
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1 established. They came to that location after  
2 VELCO had already established a corridor.

3 BOARD MEMBER BURKE: Thank you.

4 CHAIRMAN VOLZ: Any followup to our  
5 questioning? Mr. Sciarrotta. Mr. Diamond,  
6 why don't you go ahead because probably VELCO  
7 would probably like to address -- respond to  
8 -- have an opportunity to respond to all of  
9 the cross before.

10 MR. DIAMOND: Certainly, Mr. Chairman.  
11 I have some prepared questions.

12 CHAIRMAN VOLZ: Okay.

13 MR. DIAMOND: And an exhibit to  
14 reference.

15 CROSS EXAMINATION

16 BY MR. DIAMOND:

17 Q. Mr. Heintz, good morning.

18 A. Good morning.

19 Q. I would like to start with the last concept I  
20 think that was addressed to you, the set of questions  
21 coming to dealing with the nuisance. Have you had a  
22 chance to look at the easements, the VELCO easements,  
23 along this particular right-of-way that we're talking  
24 about?

25 A. I have. I've reviewed those easements. Yes.  
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1 Q. And you're somewhat familiar with them?

2 A. Somewhat, but I'm not an expert.

3 Q. Understood. And do those easements, as far as  
4 you know, allow already for the placement of a high  
5 capacity transmission pipeline for natural gas?

6 A. It's my understanding that those easements are  
7 exclusively for the construction of electric transmission  
8 equipment and conductors and they do not cover third  
9 parties like Vermont Gas or pipelines.

10 Q. So would it be fair to say that even if these  
11 homeowners bought knowing that there was a huge -- or  
12 there was some electric lines going near their property,  
13 they certainly didn't contemplate a high capacity  
14 transmission pipeline for natural gas?

15 A. I can't speak to what they might have  
16 contemplated, but I do understand that the easements are  
17 for VELCO's use and not for third parties.

18 Q. And there's nothing in those easements that  
19 would have put those homeowners on notice of the  
20 possibility of a high pressure transmission natural gas  
21 pipeline?

22 A. That's correct.

23 Q. And as a result these homeowners would not be  
24 on notice that their property -- because what VELCO has is  
25 an easement, they still own this property, correct?

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1           A.       To the best of my knowledge that is correct.

2           Q.       So these abutting homeowners wouldn't -- this  
3 would be a new burden upon their properties?

4           A.       That is correct.

5           Q.       Or an overburden, if you will. You were here  
6 for Mr. Pilcher's testimony on Tuesday, Mr. Heintz?

7           A.       Yes, I was.

8           Q.       And Mr. Pilcher, on behalf of the Town of  
9 Monkton, raised a concern about a rerouting that would  
10 impact landowners who have not had an opportunity to  
11 participate in this process. Do you recall that?

12          A.       Yes, I do.

13          Q.       And at some point were you involved in the  
14 negotiations with the Town of Monkton and trying to take  
15 into account their concerns as a municipality of what they  
16 would like to see with this project?

17          A.       Yes, I was.

18          Q.       And, in fact, that's -- accounting for the  
19 town's concerns is one of the criteria under 248(b), isn't  
20 it?

21          A.       Yes, it is.

22          Q.       And the town's recommendation or preference  
23 was to make sure to the best ability possible that this  
24 pipeline be 300 feet set back from all residences and  
25 wells?

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1           A.       That is what the MOU states.   Yes.

2           Q.       And was that one of the concerns other than  
3 the others that we discussed earlier with the Board when  
4 rerouting that pipeline from the VELCO right-of-way on  
5 Rotax Road on to the Palmer property?

6           A.       Yes.   It was one of the considerations.

7           Q.       Was it an important consideration?

8           A.       Yes.

9           Q.       And I would like to -- I know you were looking  
10 at EMS-1, surrebuttal exhibit EMS-1.   Do you have that  
11 nearby to reference?

12          A.       Yes.

13          Q.       So I just want to put some names with the  
14 properties.   I know we've been kind of talking about  
15 generic properties.   Are you familiar with the particular  
16 landowners on this VELCO right-of-way that's depicted?

17          A.       I know the names.   I'm not personally familiar  
18 with them individually.   No.

19          Q.       So, for example, I guess the most northerly  
20 property on the east side near pole 187, do you know who  
21 that is?   Is that the Baileys?

22          A.       Is that the -- it's my understanding that --  
23 is this the property you're referring to?

24          Q.       I believe so.

25                   CHAIRMAN VOLZ:   And that property is now  
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1 indicated with an arrow saying existing  
2 drilling approximately 35 feet from existing  
3 right-of-way. Is that the one?

4 MR. HEINTZ: Yes.

5 BY MR. DIAMOND:

6 Q. Do you know that to be the Bailey property?

7 A. That is my understanding.

8 Q. Then the next property on the eastern side is  
9 the McGuinness property?

10 A. That's correct.

11 CHAIRMAN VOLZ: And that's the one  
12 marked approximately 15 feet from existing  
13 VELCO right-of-way; is that correct?

14 MR. HEINTZ: Yes.

15 BY MR. DIAMOND:

16 Q. Just so we have clear identities on the  
17 record, on the western side north by pole 187 which says  
18 approximately 75 feet from the existing VELCO  
19 right-of-way, is that the Mayo's?

20 A. That is my understanding, yes.

21 Q. And then the property south from that also on  
22 the western side which reads approximately 100 feet from  
23 existing VELCO right-of-way, is that the Latreille  
24 residence?

25 A. Yes.

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1 Q. And we're not just dealing with residence  
2 here. We also are dealing with a spring from Ms.  
3 McGuinness, aren't we?

4 A. That's correct. Ms. McGuinness has a well or  
5 spring located within the VELCO easement.

6 Q. And so if the rerouting or the routing went  
7 into the VELCO right-of-way as being discussed it would  
8 not only go very close to her home, possibly 25 feet, but  
9 it would also come very close to her spring which is on  
10 the western side of the right-of-way; is that correct?

11 A. That is correct.

12 CHAIRMAN VOLZ: How close? Do you have  
13 any idea?

14 BOARD MEMBER COEN: Wait a minute. This  
15 is with the assumption of being 10 feet within  
16 the right-of-way not going down the  
17 centerline; is that correct?

18 MR. DIAMOND: Well if I may ask a few  
19 questions to clarify?

20 BY MR. DIAMOND:

21 Q. Let's run through all three scenarios. So if  
22 we run down the eastern side at some point doesn't the --  
23 that proposal create an east-west cross so you tie back up  
24 with the line again down south or down eastward?

25 A. Yes.  
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1 Q. And isn't that east-west line almost parallel  
2 with Ms. McGuinness's house and spring?

3 A. Yes.

4 Q. And how far do you feel with that parallel  
5 line coming down in an east-west manner to the McGuinness  
6 property and the McGuinness well, how far off would that  
7 be?

8 A. With the McGuinness property, and again  
9 without having the design finished, as we came across --  
10 now are you talking about if we are 10 foot inside or  
11 would the original -- with the original proposal of 12/20?

12 CHAIRMAN VOLZ: The original proposal is  
13 what I thought we were talking about this  
14 morning where you would be a hundred feet off  
15 of the existing VELCO structures and going  
16 down the middle of their right-of-way in the  
17 section that runs northeast to southwest.

18 A. Sure. So if we maintained that location as we  
19 passed down into a point where we intersected the corridor  
20 on the west side of the VELCO corridor --

21 Q. Yes.

22 A. -- we would be approximately 115 feet from  
23 Miss McGuinness's house and approximately the same  
24 distance, maybe a little less, to her well.

25 CHAIRMAN VOLZ: And, Mr. Diamond, if you  
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1           wanted to ask a different question that's  
2           fine, but I just wanted to clarify what I  
3           understood to be what we wanted to know.

4                   MR. DIAMOND: Thank you, Mr. Chairman.

5 BY MR. DIAMOND:

6           Q.       And so taking the same logic, just to make  
7           sure we have a clear record, assuming we're running down  
8           through what was 150 feet east of the existing VELCO  
9           lines, is that the original proposal?

10          A.       It's actually a hundred feet.

11          Q.       A hundred feet.

12          A.       Yes.

13          Q.       Any sense of what the distance would be from  
14          the Bailey property to the pipeline?

15          A.       Approximately 135 feet.

16          Q.       And looking at it from the other direction, if  
17          we're still talking about that hundred feet east of the  
18          existing VELCO lines, any sense of the distance vis-a-vis  
19          the Mayo property?

20          A.       The Mayo property is going to be approximately  
21          250 feet.

22          Q.       All right. And as you said earlier you were  
23          here for Mr. Pilcher's testimony when he said there was a  
24          Mayo well which was pretty much parallel with the  
25          residence?

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1           A.       Yes. I did hear that.

2           Q.       Any reason to dispute that description?

3           A.       No reason.

4           Q.       And would therefore the pipeline under this  
5 hypothetical placement be about 200 feet from their well?

6           A.       I think that's an accurate assessment.

7           Q.       And how about with the Latreille property?

8           A.       The Latreille property is going to be  
9 approximately 275 feet.

10          Q.       And if the -- so there's two more potential, I  
11 guess, discussions going on. There's an east side  
12 corridor and coming back down with an east-west again the  
13 McGuinness property. So let's just run through that  
14 hypothetical, if you will.

15          A.       Sure.

16          Q.       To comply with VELCO's wishes it's 10 feet off  
17 of the eastern side of the VELCO easement. How far would  
18 that be from the Bailey property?

19          A.       Approximately 45 feet.

20          Q.       From the McGuinness property?

21          A.       Approximately 25 feet.

22          Q.       And from her well or spring I should say?

23          A.       Approximately 200 feet.

24          Q.       I'm having trouble orienting how it can be so  
25 close to her home but so far away from her well when I  
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1 visually see kind of a straight line. May I come up close  
2 to the witness, Mr. Chairman?

3 CHAIRMAN VOLZ: Yes.

4 MR. DIAMOND: Just so I can see.

5 A. So what I'm suggesting is that if we were to  
6 come down along the hundred foot inside the VELCO corridor  
7 or the ten foot, you would extend this line out and then  
8 over.

9 Q. But at some point isn't with the 10 feet  
10 proposal that you want to link up with this blue line at  
11 some point?

12 A. Yes, but we could do it at an angle.

13 Q. I see. And then looking --

14 CHAIRMAN VOLZ: Hang on a second. We  
15 have a clarifying question.

16 MR. DUDLEY: Mr. Heintz, if I'm reading  
17 your scale correctly, the pink shaded area  
18 which is on the eastern side of the area it  
19 appears to be 150 feet wide not 100 feet wide  
20 if I'm reading your scale correctly. The pink  
21 shaded area.

22 MR. HEINTZ: This entire corridor?

23 MR. DUDLEY: Yeah. I mean you can check  
24 me, but I've checked it a couple of times.

25 CHAIRMAN VOLZ: Including the cross  
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1 hatching or just the pink?

2 MR. DUDLEY: Just the pink.

3 CHAIRMAN VOLZ: Yeah. Okay. Including  
4 the cross hatching should be 350.

5 MR. HEINTZ: I have it at over 300 feet  
6 on this scale.

7 MR. DUDLEY: The entire right-of-way is  
8 over 300 feet. I'm talking about the pink  
9 area just outside the archaeological sensitive  
10 area, between that and the outside border of  
11 the right-of-way according to the scale here  
12 it appears to be 150 feet.

13 MR. HEINTZ: Okay.

14 MR. DUDLEY: Does that make a difference  
15 or no?

16 MR. HEINTZ: No.

17 MR. DUDLEY: Does it make a difference  
18 as far as calculating the distance of these  
19 dwellings from one of the -- proposed siting  
20 of the pipeline?

21 MR. HEINTZ: There may be some  
22 confusion. It's my understanding that the  
23 distance between say the structure 187 and the  
24 edge of the corridor is approximately 200

25 feet. We're proposing in the 12/20 proposal  
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1 to run a hundred feet right down the middle,  
2 and so with those -- that's what I was using  
3 to calculate, and maybe I made an error in my  
4 calculation, but --

5 MR. DUDLEY: Again I'm going off your  
6 scale or maybe this isn't your scale. I don't  
7 know. It's Vanasse Hangen and Brustler.

8 In other words, if I'm looking at the  
9 Bailey property that says here it's 35 feet  
10 from the existing right-of-way, if you add in  
11 the pink shaded area, then you're up to 185  
12 feet to the edge of the archaeological  
13 sensitive area. Am I reading that correctly?

14 MR. HEINTZ: Yes, you may be, but I'm  
15 not saying that we would be outside of that.  
16 I'm saying that we would be a hundred feet --  
17 we are using as benchmark the distance between  
18 the structure without any account for the  
19 archeologically sensitive area. This is not  
20 to my knowledge. Although it's sensitive,  
21 it's been cleared by our archaeologist which  
22 gives us the ability to dig through it. So we  
23 would go in the archeologically sensitive area  
24 through there.

25 MR. YOUNG: Just so I understand it the  
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1 existing VELCO line is approximately 75 feet  
2 from the west edge of their right-of-way  
3 correct?

4 MR. HEINTZ: Yes.

5 MR. YOUNG: And so if you were a hundred  
6 feet off of that you would be approximately  
7 dead center of the 350?

8 MR. HEINTZ: Correct.

9 CHAIRMAN VOLZ: All right. You would be  
10 175 feet from the eastern edge. Thank you.

11 MR. DIAMOND: If I may continue, Mr.  
12 Chairman?

13 CHAIRMAN VOLZ: Yes.

14 BY MR. DIAMOND:

15 Q. So I think we're now onto the hypothetical of  
16 running the line down the western edge of the VELCO  
17 corridor. So how far would that be from the Mayo property  
18 -- Mayo residence I should say?

19 A. So when you say we're running down the western  
20 edge are we inside or outside of the VELCO corridor?

21 Q. Good question. As I understand it the  
22 discussion has been 10 feet outside -- let's run them  
23 both. So if it was 10 feet outside to the west of the  
24 corridor, how far would it be from the Mayo residence?

25 A. If it's 10 foot outside the corridor, we're 65  
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1 feet from the Mayo residence.

2 Q. And if it's 10 feet inside the corridor?

3 A. Then we are 85 feet from the Mayo residence.

4 Q. And likewise with the Mayo -- well if we're 10  
5 feet inside on the western side of the VELCO corridor?

6 A. Approximately 65 feet, and if we're inside  
7 approximately 85 feet.

8 Q. And with the Latreille property if the line  
9 went within 10 feet outside the western boundary of the  
10 VELCO corridor, how far?

11 A. Outside we would be 90 feet from the Latreille  
12 property.

13 Q. Yes.

14 A. Inside would be 110 feet.

15 Q. And then, Mr. Heintz, you're one of the  
16 project managers, is that correct -- the project manager?

17 A. That's correct.

18 Q. I would like to show you what's been marked I  
19 believe as Monkton Cross 1. Do you have that nearby? I  
20 can produce another copy.

21 A. I have it.

22 Q. Thank you. Please tell me when you have had a  
23 moment to take a look at this document.

24 A. Okay.

25 Q. And are you familiar with this document?  
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1 A. Yes.

2 Q. Is it fair to say that this was a document  
3 that was filed with the Public Service Board?

4 A. Yes.

5 Q. On or about February 28, 2013?

6 A. Yes.

7 Q. And this document identifies the type of  
8 notices that Vermont Gas provided to landowners in the  
9 vicinity of this project?

10 A. That's correct.

11 Q. And this is just -- this isn't the entire  
12 filing. This is just one of those notice letters and a  
13 listing of those residents who received that particular  
14 notice letter?

15 A. That's correct.

16 Q. And this is what's called notification -- the  
17 second page is what's called Notification E?

18 A. Correct.

19 Q. And there are several paragraphs. Could you  
20 read into the record, I guess it's the fourth paragraph,  
21 that begins with the recent refinements?

22 A. The recent refinements altered the pipeline  
23 route to such an extent that the pipeline is no longer  
24 adjoining your property. Accordingly, the PSB does not  
25 view you as an adjoiner to this project. However, you are  
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1 welcome to continue to follow the project via our web site  
2 at [www.addisonnaturalgas.com](http://www.addisonnaturalgas.com).

3 Q. And on the next several pages there's a copy  
4 of a spreadsheet about who received this letter?

5 A. Correct.

6 Q. And is it fair to say that Mr. Mayo of 842  
7 Rotax Road received this letter?

8 A. Yes.

9 Q. Is it the same Mr. Mayo that we've been  
10 talking about with regards to surrebuttal EMS-1?

11 A. Yes.

12 Q. And Ms. Stacy Bailey received this letter as  
13 well?

14 A. Yes.

15 Q. And is this the same Stacy Bailey that we  
16 referred to on Petitioner Surrebuttal EMS 1?

17 A. Yes.

18 Q. And that Theodore McGuinness and Renee  
19 McGuinness received this letter as well at 673 Rotax Road?

20 A. Yes.

21 Q. And that's the same McGuinness that we've been  
22 talking about with regards to Petitioner Surrebuttal EMS  
23 1?

24 A. Yes.

25 Q. And is it a fair characterization that the  
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1 paragraph that you just read with that letter essentially  
2 is telling landowners you're not going to be a party to  
3 this proceeding?

4 A. That's correct.

5 Q. And therefore their concerns about their  
6 impacts of a pipeline on their water resources, their  
7 wells, won't be heard, correct?

8 A. Correct.

9 Q. And that those property owners who have  
10 concerns about whether a pipeline would cross close to  
11 their children's play yards or playgrounds wouldn't be  
12 heard; is that correct?

13 A. That's correct.

14 Q. And that this potential pipeline that would  
15 cross close to their gardens or maybe even in their  
16 gardens wouldn't be considered as well, correct?

17 A. Correct.

18 Q. They would not have the opportunity for due  
19 process. I'll withdraw the question.

20 BOARD MEMBER BURKE: Just a second if I  
21 could. Did you indicate to them that in fact  
22 they couldn't be parties or that in fact they  
23 were no longer adjoining?

24 MR. HEINTZ: That they were no longer  
25 adjoining.

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1                   BOARD MEMBER BURKE: So you didn't tell  
2                   them they wouldn't have standing. That would  
3                   be our decision, wouldn't it?

4                   MR. HEINTZ: That's correct.

5                   BOARD MEMBER BURKE: Thank you.

6                   CHAIRMAN VOLZ: I think, Mr. Diamond,  
7                   part of the problem with your questioning you  
8                   were characterizing as they wouldn't be heard  
9                   and that's jumping a couple steps ahead.

10                  Obviously the pipeline situation changed  
11                  -- proposal changed. As I understand the  
12                  letters, they notified these people that the  
13                  location had changed and therefore they would  
14                  not be abutters. They still might have had  
15                  interest in this pipeline and could have  
16                  intervened. We don't know. So I think your  
17                  characterization and your questions are  
18                  jumping a few steps ahead of where the  
19                  evidence actually -- where the evidence would  
20                  actually support.

21                  So I just wanted that to be noted, and  
22                  we're taking the witness's answers as being  
23                  answers to the question about whether -- what  
24                  kind of notice they got, and I think the  
25                  letter speaks for itself and I assume that's

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1 in evidence or is going to be put in evidence.

2 MR. DIAMOND: Yes. At this time I would  
3 like to move Monkton's Cross 1 into evidence.

4 CHAIRMAN VOLZ: Any objection?

5 MS. HAYDEN: No objection.

6 CHAIRMAN VOLZ: Okay. Thank you. It's  
7 admitted.

8 (Exhibit Monkton Cross 1 was admitted  
9 into the record.)

10 MR. DIAMOND: Thank you, Mr. Chairman,  
11 and with your brief indulgence I may be done.  
12 I just need to go through my notes briefly.

13 CHAIRMAN VOLZ: Sure.

14 MR. DIAMOND: Nothing further, Mr.  
15 Chairman.

16 BOARD MEMBER COEN: Mr. Heintz, just  
17 continuing on the hypothetical I proposed to  
18 you earlier, and if we said you had to go 300  
19 feet from the --

20 MR. YOUNG: Palmer.

21 BOARD MEMBER COEN: -- from Mr. Palmer's  
22 residence -- that's why I'm retiring -- and  
23 your next option was going back into the VELCO  
24 corridor and those residents had not been  
25 notified in regard to the route, what do you  
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1 think this Board would do or what do you think  
2 would happen if you came in with that  
3 proposal?

4 MR. HEINTZ: I really couldn't --  
5 couldn't venture a guess.

6 BOARD MEMBER COEN: Mr. Burke and I have  
7 had a little experience on some contentious  
8 transmission lines on the electric side, and  
9 you think we might have you notify those  
10 owners, give them an opportunity to speak, and  
11 have further hearings?

12 MR. HEINTZ: I would think that that  
13 would be a possibility. Yes.

14 BOARD MEMBER COEN: Thank you.

15 CHAIRMAN VOLZ: Mr. Sciarrotta, do you  
16 have questions for this witness?

17 MR. SCIARROTTA: Just a few.

18 CHAIRMAN VOLZ: Sure.

19 CROSS EXAMINATION

20 BY MR. SCIARROTTA:

21 Q. Two are just clarifications. You testified in  
22 the December 2012 alignment that the pipeline around  
23 structure 180 was sited outside the VELCO right-of-way,  
24 correct?

25 A. Yes.  
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1           Q.       But the project itself at that point was still  
2 in the VELCO right-of-way? The project is broader than  
3 the actual pipeline; is that correct? In other words,  
4 some of the permanent easements would still have been in  
5 the VELCO right-of-way?

6           A.       That's correct.

7           Q.       Are there specific gas pipeline industry  
8 standards that would prohibit the installation of a  
9 pipeline 10 feet inside of the westerly edge of the VELCO  
10 corridor in this area we're talking about around Rotax  
11 Road where the VELCO corridor doglegs?

12          A.       None to my knowledge.

13          Q.       Is that true for the easterly side as well?

14          A.       That would be correct. Yes.

15                   MR. SCIARROTTA: No further questions.

16                   CHAIRMAN VOLZ: Thank you. Do you have  
17 any redirect?

18                   MS. HAYDEN: Just in terms of clarifying  
19 the record, Mr. Heintz --

20                   BOARD MEMBER COEN: Wait a second.

21                   CHAIRMAN VOLZ: Mr. Palmer, you had  
22 questions. I'm sorry. I didn't see you  
23 earlier when I asked.

24                   MR. PALMER: I just had a couple  
25 questions. Hopefully it's appropriate.  
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CROSS EXAMINATION

BY MR. PALMER:

Q. With the possibility of it being on the western side you have been discussing just being 10 feet inside the VELCO corridor; is that correct?

A. I think we discussed 10 foot inside and outside.

Q. And what is the closest you can get to those structures?

A. VELCO has requested that we maintain a 50-foot setback.

Q. Could you get any closer to that? Is that written in stone that you have to be 50 feet from the structure or could you be like 10 feet from the structure? Is that a problem?

A. You would have to evaluate the stray current potential and existing infrastructure in that area to make that determination. In some cases I think that you can be closer than 50 feet without being outside of industry standard practice or putting, you know, the pipeline or the VELCO structure in any kind of -- at any kind of additional risk.

Q. Have you heard concerns from all four of those residences in that area?

A. I'm not aware that we have heard from all of Capitol Court Reporters, Inc. (800/802) 863-6067



1 those residents.

2 CHAIRMAN VOLZ: Have you heard from any  
3 of them?

4 MR. HEINTZ: Yes.

5 CHAIRMAN VOLZ: And what have you heard?

6 MR. HEINTZ: That they are not in favor  
7 of having the pipeline in the corridor.

8 CHAIRMAN VOLZ: Okay.

9 BY MR. PALMER:

10 Q. And if you were to give the maximum amount of  
11 clearance that you could possibly wiggle that through  
12 there, what distance would you be talking at the Mayo  
13 property and at the Latreille property just so I can have  
14 that clear?

15 A. If we put the pipeline 50 foot -- I think  
16 you're asking if we install the pipeline with a 50-foot  
17 setback from the structure, that would put us about 100  
18 feet from the Mayo property and about 125 feet  
19 approximately from the Latreille property.

20 BOARD MEMBER COEN: When you say  
21 property you mean the house?

22 MR. HEINTZ: I'm sorry. House.  
23 Structure.

24 BOARD MEMBER COEN: Thanks.

25 BY MR. PALMER:

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1 Q. And if the landowner didn't have a problem  
2 with it, would that clear up some of the issues?

3 A. Well I mean --

4 Q. Easier for you to go ahead if the landowner  
5 didn't oppose it?

6 A. If the landowner was willing to grant an  
7 easement, that would help. Yes.

8 Q. That clears up the issues of the distance from  
9 the McGuinness and the Bailey property if it's on the west  
10 side?

11 A. It would provide a greater distance from those  
12 structures. Yes.

13 Q. So that would probably be over the 300 foot at  
14 that point?

15 A. I don't think it would still be over the 300  
16 foot.

17 Q. Close?

18 CHAIRMAN VOLZ: I'm sorry. What was the  
19 question, but it would be closer?

20 BY MR. PALMER:

21 Q. Yes. I guess this is a 350-foot corridor and  
22 if you're 50 feet into it, that would -- seems like it  
23 would give you 300 feet to McGuinness's house. They are  
24 outside of the VELCO corridor, their home is?

25 A. I would have to do a better assessment, but it  
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1 would be clearly a greater distance.

2 CHAIRMAN VOLZ: Okay.

3 BY MR. PALMER:

4 Q. So my understanding is if the landowner didn't  
5 have a problem, that would be -- make it easier to build  
6 on that side. Have you ever offered gas service to  
7 someone in a situation like this to make it a slightly  
8 sweeter deal when you're that close to a station?

9 A. Not to my knowledge.

10 Q. Just a minute. Thank you.

11 CHAIRMAN VOLZ: Thank you. Any  
12 redirect?

13 BOARD MEMBER BURKE: I have something.  
14 We have heard a great deal about the  
15 McGuinness spring, but nobody's really talked  
16 about how that spring ended up there. Do you  
17 have an understanding as to whether that was  
18 negotiated at the time the easement was taken?  
19 Whether it was granted afterwards? Do you  
20 have any understanding of how that ended up  
21 for their use in the right-of-way?

22 MR. HEINTZ: Unfortunately I don't, but  
23 I have wondered the same thing.

24 BOARD MEMBER BURKE: Thank you.

25 CHAIRMAN VOLZ: Any questions from  
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1 Vermont Gas?

2 MS. HAYDEN: Just one clarifying  
3 question so the record is clear.

4 REDIRECT EXAMINATION

5 BY MS. HAYDEN:

6 Q. Mr. Heintz, when you were talking about the  
7 segment of the VELCO corridor beginning at around  
8 structure 180, maybe it's 181 to 187, was it -- in the  
9 December filing did the plans as filed indicate that  
10 Vermont Gas would be drilling that section?

11 A. Can you repeat the structures?

12 Q. Structures 181 -- approximately 181 to 187.

13 A. There were sections in there that were drilled  
14 in the original proposal, but not the entire length.

15 Q. Okay. I have nothing further.

16 CHAIRMAN VOLZ: Thank you. Actually I  
17 had one followup which was I think you were  
18 interrupted in answering my question which was  
19 after you made the December 20th proposal  
20 which had it going as you just -- as you have  
21 been describing, then you changed it to the  
22 proposal we were looking at today, what were  
23 all the reasons Vermont Gas's decision to move  
24 the line from the original proposal to the  
25 existing one? And you can just tick them off.

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1           You don't have to get into a lot of detail  
2           about each one.

3                   MR. HEINTZ:   Sure.   Number of impacted  
4           landowners, archaeological sites, natural  
5           resources, the ravine and stream,  
6           constructibility, and cost.

7                   CHAIRMAN VOLZ:   What about VELCO?

8                   MR. HEINTZ:   And VELCO.   I almost forgot  
9           that one.

10                   BOARD MEMBER COEN:   Then I have an -- in  
11           terms of the cost issue, if it ends up that  
12           you have to directional drill, horizontal  
13           drill across all of Mr. Palmer's property, how  
14           does that factor in, in a comparison of cost  
15           of what would have been?

16                   MR. HEINTZ:   It's still less expensive  
17           than going down the VELCO corridor.

18                   CHAIRMAN VOLZ:   Thank you.   Any other  
19           questions?

20                   MS. TIERNEY:   Do you know by a magnitude  
21           -- an order of magnitude how much more  
22           expensive?

23                   MR. HEINTZ:   I would estimate in the  
24           range of \$300,000.

25                   CHAIRMAN VOLZ:   More expensive to go  
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1 through --

2 MR. HEINTZ: To go through the VELCO  
3 corridor. Now we're talking -- we have had  
4 some confusion. We've talked about three  
5 different routes down the VELCO corridor. So  
6 to be clear this would be what I would  
7 consider to be the least cost option and that  
8 may not coincide with our ability to convince  
9 the other landowners because of the proximity  
10 to the line to their house. So there's a  
11 number of factors to juggle and -- but I can  
12 say this with a lot of confidence that the  
13 VELCO corridor would be more expensive  
14 regardless of any of the options that we  
15 talked about. It's only a difference between  
16 say \$300,000 up to a million dollars in  
17 additional cost.

18 MS. TIERNEY: Okay. But it's not five  
19 or ten million?

20 MR. HEINTZ: No.

21 MS. TIERNEY: Thank you.

22 CHAIRMAN VOLZ: Thank you. Any  
23 followup? Yes, Mr. Sciarrotta.

24 MR. SCIARROTTA: One quick followup to  
25 the question on cost.

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1 CHAIRMAN VOLZ: Sure.

2 BY MR. SCIARROTTA:

3 Q. If the Board were to approve the alignment of  
4 the project according to Vermont Gas's December 2012 --  
5 December 20, 2012, assuming that that alignment in the  
6 future resulted in additional cost to VELCO for -- which  
7 it would not otherwise incur except for the project or its  
8 construction of a second line in there, who would bear  
9 those costs, those additional costs, those incremental  
10 costs?

11 A. That is outside of my ability to answer.

12 Q. But those costs, assuming that they were  
13 occasioned by a gas project, would it be fair to have  
14 those costs borne by electric ratepayers?

15 A. I think that would be a negotiated agreement  
16 between Vermont Gas and VELCO.

17 CHAIRMAN VOLZ: Okay. Are we done with  
18 this witness? I think we are. Great.

19 BOARD MEMBER COEN: Safe travels.

20 MR. HEINTZ: Thank you very much.

21 CHAIRMAN VOLZ: Thank you, Mr. Heintz,  
22 appreciate it. I think we're ready for Mr.  
23 Bluestein.

24 (Off-the-record discussion.)

25 CHAIRMAN VOLZ: Apparently we're taking  
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1 a five-minute break. So why don't we just  
2 take a five-minute break.

3 (Recess.)

4 THE CHAIRMAN: I would like to get  
5 started again if we could. I think we're  
6 ready for Mr. Bluestein.

7 BOARD MEMBER COEN: Mr. Bluestein, do  
8 you want to raise your right-hand?

9 JOEL BLUESTEIN,

10 Having been duly sworn, testified  
11 as follows:

12 BOARD MEMBER COEN: Please state your  
13 name for the record.

14 MR. BLUESTEIN: Joel Bluestein.

15 DIRECT EXAMINATION

16 BY MS. HAYDEN:

17 Q. Mr. Bluestein, good morning.

18 A. Good morning.

19 Q. Can you please state your occupation?

20 A. I'm a Senior Vice President of ICF  
21 International.

22 Q. And do you have in front of you a document  
23 that's titled Rebuttal Testimony of Joel Bluestein on  
24 behalf of Vermont Gas Systems dated June 28, 2013  
25 consisting of 12 pages of testimony together with a cover  
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1 page and a table of contents?

2 A. Yes, I do.

3 Q. And was that document prepared by you or under  
4 your direct supervision?

5 A. Yes.

6 Q. Is it true and accurate to the best of your  
7 knowledge and belief?

8 A. Yes.

9 Q. Are there any corrections that you need to  
10 make?

11 A. There was a correction regarding the units of  
12 density that was already made. Other than that I have no  
13 corrections.

14 Q. Can you please refer me to the correction in  
15 your testimony that you're referencing?

16 A. It says the density of gas is listed as 42  
17 pounds per cubic foot. It should be 42 pounds per  
18 thousand cubic feet.

19 Q. And do you also have with you nine exhibits  
20 that were included with your rebuttal testimony identified  
21 as exhibit Petitioner rebuttal JB 1 through JB 9?

22 A. Yes.

23 Q. And were those documents prepared by you or  
24 under your direct supervision?

25 A. Some of them are documents that we refer to in  
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1 the study, but were not prepared by us.

2 Q. And that would be exhibits 8 and 9, correct?

3 A. Yes.

4 Q. And exhibit 6?

5 A. Exhibit 6 and, yes, and there's one ICF report  
6 here that was prepared by ICF, but not by me. That is  
7 exhibit 7.

8 Q. Okay. You used each of these documents, and I  
9 didn't frame that very well because there are several  
10 reports that you have included as exhibits which you  
11 didn't prepare, but you have used these documents and  
12 relied on them in the preparation of your testimony; is  
13 that correct?

14 A. Yes.

15 Q. And with respect to the documents that you  
16 prepared are there any corrections that you need to make  
17 at this time?

18 A. No.

19 Q. And with respect to the documents that you  
20 prepared are they true and accurate to the best of your  
21 knowledge and belief?

22 A. Yes.

23 Q. Do you also have with you a document that's  
24 been marked as exhibit Petitioner Surrebuttal JLB-1?

25 A. Which one is that?  
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1           Q.       It's a document that has an exhibit sticker  
2 JLB-1 entitled Measurements of Methane Emissions at  
3 Natural Gas Production Sites In The United States.

4           A.       Yes.

5           Q.       Okay. Thank you.

6                   MS. HAYDEN: At this time I would like  
7 to move the admission of the prefiled  
8 testimony of Joel Bluestein together with  
9 exhibits JB 1 through JB 9.

10                  CHAIRMAN VOLZ: Any objection? They are  
11 admitted.

12                  (The Prefiled Testimony of Joel  
13 Bluestein was admitted into the record.)

14                  (Exhibits marked Petitioner Rebuttal JB  
15 1-9 were admitted into the record.)

1 MS. HAYDEN: And exhibit surrebuttal JLB  
2 1 will be used in connection with Mr.  
3 Bluestein's live surrebuttal.

4 BY MS. HAYDEN:

5 Q. And so turning to your surrebuttal of --  
6 surrebuttal in this proceeding, Mr. Bluestein, have you  
7 had a chance to review Dr. Stanton's rebuttal testimony,  
8 and I'm referring particularly to page 3 where she  
9 addresses the underlying uncertainty and the methane  
10 leakage rates, various studies that are out there today?

11 A. Yes.

12 Q. How do you respond to her rebuttal testimony  
13 on that point?

14 A. Well I think there are several layers of  
15 response on the topic of uncertainty and scientific  
16 uncertainty for policy making. There's almost always some  
17 uncertainty with science. It's part of the scientific  
18 process. There's uncertainty over climate change and  
19 human impacts on climate change, and some people say  
20 there's that uncertainty is such that we shouldn't be  
21 addressing climate change. I don't believe that. I think  
22 there's probably nobody in this room that believes that,  
23 but I think it's an example of how we deal with  
24 uncertainty in the policy making process, and so just as  
25 there's uncertainty there, there is uncertainty on  
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1 greenhouse gas emissions.

2           That said, that kind of uncertainty is not an  
3 impediment and it's not even really a part of most of our  
4 environmental policy making and certainly the analysis of  
5 life cycle emissions. So if you look at environmental  
6 policy for conventional pollutants like ground level ozone  
7 or smog, the precursors are nox emissions from combustion  
8 and hydrocarbons from various sources, and when we deal  
9 with reducing smog we don't try to go out and measure  
10 every vehicle exhaust, every dry cleaner, every gas  
11 station. We use a variety of estimates, models, and  
12 various resources to estimate the emissions, and then we  
13 make policy on how to address smog, and I think kind of  
14 corollary to this question about uncertainty is the idea  
15 that we ought to be directly measuring all the sources,  
16 and if we're not directly measuring, then we really don't  
17 know enough to estimate the impact, and as I said that's  
18 not the standard that we use for most environmental  
19 regulation on air emissions and it's not the standard  
20 that's used in the field of life cycle analysis.

21           So if you look at life cycle studies, and I  
22 can't say never, but in almost none that -- certainly none  
23 that I'm aware of will you find the case that the authors  
24 have gone out and measured all of the upstream sources.

25 In fact, they typically use emissions factors and  
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1 estimates and models similar to when we did our study  
2 because for one case, as in this case, the subject of the  
3 study may not be built yet so we can't measure, and some  
4 of the upstream components may not be built yet so we  
5 can't measure, and we can't even identify all of the  
6 upstream components. As in this case we don't really know  
7 specifically every well where a gas comes from to Vermont  
8 Gas, and we have no way to measure many of the upstream  
9 components.

10 That said, we have very good information on  
11 those types of sources from a variety of sources and the  
12 data on those sources continues to improve over time. So  
13 I think it's a bit of a false premise to say that if we  
14 don't have direct measure data we can't do this analysis.  
15 It's not the way these types of analysis are done, and in  
16 my opinion it doesn't create an uncertainty that would  
17 prevent us from accepting the results as many other  
18 studies have been accepted.

19 Q. And the U.S. EPA inventory on greenhouse gas  
20 emissions is that based on direct measurements in all  
21 cases or emissions factors used?

22 A. The U.S. inventory relies on a variety of  
23 sources. The original source is a set of direct  
24 measurements that were made back in the 90's and some of  
25 those are still valid, but there are -- have been of  
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1 course many changes in the industry since then, and so the  
2 inventory relies on a mix of measured data, reports from  
3 industry, reports from other studies, as well as  
4 engineering calculations, and now the EPA's greenhouse gas  
5 reporting program, which is a program that started in  
6 2012, that requires large greenhouse gas emitters to  
7 report their emissions directly to the EPA. So the 2011  
8 data are now available and are being used for the next  
9 round of the greenhouse gas -- EPA greenhouse gas  
10 inventory and that information over time will inform the  
11 inventory process.

12 Q. And as I understand it the EPA has also  
13 recently adopted new source performance standards for the  
14 natural gas industry. How are those expected to impact  
15 data, and, in particular, leakage rates for natural gas --  
16 the natural gas sector?

17 A. So the new source performance standards in  
18 particular limit the emissions of methane during the --  
19 what's called the well completion process for hydraulic  
20 fracturing, which is the primary growth area for natural  
21 gas production in North America, and during that process,  
22 I'm guessing people are somewhat familiar with it, water  
23 is injected and fractures the shale rock.

24 When it comes back up methane comes with it  
25 and there are three things that can happen to that  
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1 methane. It can be vented, which is a bad thing for a  
2 variety of reasons. One is you're losing the gas; two,  
3 it's a greenhouse gas; three, it has other pollutants in  
4 it. So it can be vented. It can be flared, which is  
5 slightly better in that you are reducing the greenhouse  
6 gas potential and some of the other conventional  
7 pollutants, but you're still losing the value of it and  
8 creating carbon dioxide of course, and some amount of gas  
9 doesn't get flared. So that's number two, and number  
10 three is you capture the gas and put it into a pipeline  
11 which is the best solution.

12           Prior to the new source performance standards  
13 it was a mix. The new source performance standards  
14 require that starting immediately, which was a year ago  
15 August, that the gas be flared or recovered, and then  
16 starting in a few years it must all be recovered and  
17 flaring will be only allowed under certain circumstances  
18 where recovery is not technically feasible.

19           So that's the biggest impact. It addresses  
20 those completion emissions. It also addresses emissions  
21 from certain types of compressors and compressor drives as  
22 well as tanks and other ancillary equipment. So it will  
23 have a significant -- it is in effect so it is already  
24 having a significant effect on methane emissions from the  
25 gas sector.

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1           Q.       And, Mr. Bluestein, you refer to -- you  
2 testified regarding direct measurements. Can you speak to  
3 how what's been marked as exhibit Petitioner Surrebuttal  
4 JB 1, how that relates to this topic of having direct  
5 measurements from natural gas?

6           A.       So this is a study that was just released on  
7 Monday. Was done by -- sponsored by the Environmental  
8 Defense Fund, which is a major U.S. environmental  
9 organization, in cooperation with nine natural gas  
10 producers, and it is intended -- it's part of a larger  
11 effort that is intended to provide additional information  
12 on direct measurement of methane from the entire natural  
13 gas segment from wellhead to burner tip, and they are  
14 going out and actually measuring the emissions in a  
15 variety of operations, and this is the report on the  
16 producing sector.

17                   They did go out and measure a substantial  
18 number of wells, well completions, the process I just  
19 talked about, something called gas well unloading, which  
20 is a process for removing non-hydrocarbon liquids from  
21 wells which is -- has been identified as a source of  
22 methane emissions, and some other processes.

23                   So they sampled 489 locations in this process.  
24 They have a lot of detailed information about the methane  
25 emissions. The paper is quite extensive. They have  
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1 sampled in various parts of the country in different  
2 geological regions. The authors' conclusion is that in  
3 comparing it to the EPA inventory, and I should say part  
4 of the impetus for doing this was a lot of debate about is  
5 the EPA inventory too high or is it too low on this  
6 particular topic. So it compares it to the EPA inventory.  
7 Their conclusion was well some of the segments it was a  
8 little high, some of the segments it was a little low.  
9 When you add it all up it's within 10 percent of the EPA  
10 inventory data.

11 Now it's still a relatively small sample. I  
12 think for the purposes of this case it's U.S. data. It's  
13 U.S. production, and it was somewhat self selected because  
14 the companies volunteered to be part of the program. So  
15 we would expect they would all be good students, but  
16 nevertheless it gives us, you know, a substantial amount  
17 of current direct measurement data that is very much in  
18 line with the EPA data that's been reported.

19 Q. Thank you, and in page 6 of her rebuttal  
20 testimony Dr. Stanton quotes from 2013 EPA Office of  
21 Inspector General report, or OIG report, which she quotes  
22 from, and the section of the report that she quotes from  
23 points to significant gaps in the very commonly used EPA  
24 emissions factors for natural gas. Do you have that  
25 testimony in mind?

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1           A.       Yes.

2           Q.       How do you respond to this portion of Dr.  
3     Stanton's rebuttal testimony?

4           A.       So it's helpful to be clear on the different  
5     things that are being referred to. I was talking a minute  
6     ago about the EPA's national greenhouse gas inventory.  
7     This is a report that the U.S. submits to the UN  
8     Convention on Climate Change on U.S. Greenhouse Gas  
9     Emissions, and it's prepared according to standards set by  
10    the UN framework and is prepared annually and updated  
11    annually.

12                   The Office of Inspector General report is  
13    referring primarily to what's called EPA National  
14    Emissions Inventory which is a completely different  
15    document that is updated every three years and focuses  
16    primarily on conventional pollutants like sulfur dioxide,  
17    nitrogen dioxide, air pollutants, et cetera, and it is  
18    developed by submissions from individual states and air  
19    quality districts who submit the information to a huge  
20    data base in a not quite consistent way. So the results  
21    can be quite different from one to another, and it also --  
22    the report also refers to a compendium of emissions  
23    factors. It's referred to as usually AP 42 which is  
24    updated periodically by the EPA.

25                   So the Inspector General report is primarily  
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1 focusing on this national emissions inventory which is not  
2 a greenhouse gas inventory, and in fact it points out that  
3 the EPA actually does a better job with the greenhouse gas  
4 inventory than with this national emissions inventory that  
5 is being criticized, and part of the reason is because  
6 it's done according to a standard framework and now is  
7 getting data from the greenhouse gas reporting rule that I  
8 mentioned a minute ago.

9 So I think the OIG report really does not  
10 speak to the issues that we're talking about here.

11 Q. Thank you. And at page 10 of her rebuttal  
12 testimony Dr. Stanton refers to a new study published in  
13 geophysical research letters regarding a study of methane  
14 leakage rates from a Utah gas field, and she provided a  
15 link to an abstract of that report. Have you reviewed the  
16 study itself or the report?

17 A. Yes, I have. So this study is one of several  
18 that have been done recently to try to address this issue  
19 that it's hard to measure all the gas wells in the world  
20 by measuring the ambient levels of methane. There's a  
21 prior study that measured actually a different hydrocarbon  
22 from a tall tower. In this study by Anna Carian, et al,  
23 they actually identified a valley that was a big oil and  
24 gas producing area, and they flew in a plane across the  
25 upwind side and measured -- took air samples and then they  
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1 flew the plane across the downwind side and took air  
2 samples and measured the methane content in those samples.

3 Now there's been a little confusion in several  
4 of the references to this in the testimony where it was  
5 described as direct measurement of methane from oil and  
6 gas wells. Clearly it's not direct measurement of the  
7 wells because they were flying around in a plane. It is  
8 direct measurement of the methane in the air, which is a  
9 little different from the way it had been done previously,  
10 but it's not measurement of the wells, and so what they  
11 did is they flew the plane, they took the air samples,  
12 then they had to go through -- and these are atmospheric  
13 scientists so they had to go through and try to estimate  
14 from those samples taken upwind and downwind how much  
15 methane was in that entire volume of air in this valley  
16 through dispersion modeling and wind analysis and so on,  
17 and then having estimated how much methane there was they  
18 then had to attribute a source.

19 So they estimated that there were about 4,500  
20 natural gas wells, 1,000 oil wells, and about 44,000 head  
21 of cattle. The cattle are a significant source of methane  
22 as well as you probably know. They said they didn't think  
23 there were any landfills or other major sources of  
24 methane.

25 So then they had to estimate by subtracting  
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1 the cow component how much came from oil and gas. So it's  
2 really far from a direct measurement. It's an interesting  
3 experiment. They also noted that this particular  
4 producing area is not representative of the U.S. oil and  
5 gas sector because there's more flaring there than in some  
6 other areas. They also didn't break out the gas from the  
7 oil component. So it's an interesting methodological  
8 exercise. They did the measurements on 12 days. 11 of  
9 them they felt the data was not reliable enough to report  
10 at all. So they only reported one day's data, and as I  
11 said, over time it may become a useful method for  
12 comparing the high level results to the bottom up  
13 approach, but at this point, and especially because  
14 there's only one data point, it's a little hard to apply  
15 that in any useful way to the analysis.

16 BOARD MEMBER COEN: Just a  
17 clarification. You said that they did not  
18 distinguish between the oil and gas wells in  
19 terms of where the methane comes. Was there  
20 something they could have done? Is there a  
21 difference in the nature of the methane from  
22 oil well and the nature of the methane from a  
23 gas well?

24 MR. BLUESTEIN: I don't think there's a  
25 way that they could have done it, and  
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1           especially once it's all mixed in the  
2           atmosphere you can't really -- I mean the  
3           methane itself -- methane is a compound. So  
4           the methane itself is methane. They might  
5           have been able to distinguish the other  
6           hydrocarbons if they were measuring at the  
7           wellhead, but once it's all mixed in the  
8           atmosphere it's pretty tough.

9           BOARD MEMBER COEN: Thank you.

10       BY MS. HAYDEN:

11           Q.       Just as a point of clarification. How large  
12           an area approximately is the basin that was studied in  
13           that Utah flyover?

14           A.       I'm sorry. I don't have that.

15           Q.       Okay. That's fine. Did the Board have more  
16           questions on this?

17           CHAIRMAN VOLZ: No. Continue.

18           MS. HAYDEN: Thank you.

19       BY MS. HAYDEN:

20           Q.       At page 3 of her rebuttal testimony Dr.  
21           Stanton points to a number of what she called  
22           uncertainties regarding your life cycle analysis,  
23           including two things that 85 -- your assumption that 85  
24           percent of the natural gas comes from western Canada and  
25           also the fact that you inferred upstream emissions from  
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1 western Canada based upon emissions factors for U.S.  
2 systems. How do you respond to those critiques of your  
3 life cycle analysis?

4 A. So in terms of the source of the gas, and this  
5 information was provided by Vermont Gas, 70 percent comes  
6 from the TransCanada pipeline. So it's pretty clear that  
7 comes from western Canada. The other comes from a  
8 different trading hub and it's not clear how much comes  
9 from Canada versus how much comes from the U.S., and so we  
10 made an assumption that it was 15 percent -- sorry, half  
11 from the U.S. and half from Canada.

12 So again we don't have perfect knowledge. I  
13 can say that changing that percentage of the U.S.  
14 providence has very little effect on the outcome. So  
15 again not perfect knowledge, but it's not -- doesn't make  
16 a big difference.

17 In terms of the U.S. data versus Canadian data  
18 the large gas producers are largely the same in Canada and  
19 the U.S. So if Shell is producing gas in Texas or Alberta  
20 or Chevron, they are using pretty much the same  
21 techniques, equipment, and approaches, and many of the  
22 operations are actually carried out by an even smaller  
23 number of service companies that are hired by the  
24 producers. So there's not a huge variation in the  
25 equipment or the techniques that are used in the U.S. or  
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1 Canada.

2 The primary reasons for variability would be  
3 differences in the geology which we have within the U.S.  
4 as well as between the U.S. and Canada. So we have the  
5 same amount of variability or regulation, differences in  
6 regulation, and we did account for some of the differences  
7 in regulation between the U.S. and Canada, but the actual  
8 techniques and equipment are pretty comparable.

9 We did look at one study of the Canadian  
10 emissions to confirm that and also to pick up some  
11 specific differences between the two. The other kind of  
12 aspect of that was a concern that the study was primarily  
13 based on the U.S. EPA inventory which in fact it was not.  
14 The major source was a report by the National Energy  
15 Technology Laboratory, which is a U.S. DOE lab report on  
16 greenhouse gas emissions from oil and gas production which  
17 we use because it's very detailed and bottom up and  
18 allowed us to characterize the data more specifically to  
19 the Vermont Gas characteristics, and that relies on a  
20 large number of different sources.

21 Q. Does Canada report greenhouse gas emissions  
22 under the United Nations framework convention on climate  
23 change?

24 A. Yes, and I think, you know, the question has  
25 been raised are the greenhouse gas emissions in Canada  
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1 different from those in the U.S. We have the U.S.  
2 inventory reported to the UN. If we had a Canadian  
3 inventory reported to the UN, then we could compare and  
4 have some sense whether they are different or not.

5 Canada does report greenhouse gas emissions  
6 through the same framework through a national inventory  
7 report. The only problem there was with making that  
8 comparison is that in the Canadian report some of the  
9 emissions are lumped together for oil and gas. Typically  
10 when you produce oil there's natural gas produced. There  
11 can also be gas produced aside from oil production. So in  
12 the Canadian report the methane emissions from the largest  
13 component flaring and venting are lumped together for oil  
14 and gas. So it's hard to make a direct comparison.

15 The province of Alberta, which produces 70  
16 percent of Canada's gas, does report those emissions  
17 separately. So if you take the Alberta breakout of  
18 venting and flaring and you apply it to the Canadian  
19 national, you can get an estimate of what the Canadian  
20 methane emissions are. There's a little bit of an  
21 assumption there, but again it's where 70 percent of the  
22 Canadian gas comes. It's where the vast majority of the  
23 gas, Vermont gas, comes from.

24 So if you take that breakout reported by  
25 Alberta, you apply it to the Canadian national numbers,  
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1 you can then compare it to the U.S., and what you find is  
2 that on a per volume basis or a per BTU basis the Canadian  
3 emissions are about 30 percent lower than the U.S.  
4 emissions of methane from gas production, and so since we  
5 didn't make that adjustment, that suggests that our  
6 analysis is conservative, if anything, overestimating the  
7 emissions from the Canadian gas.

8 Q. Just a couple of final questions. Do you  
9 think that the uncertainty that Dr. Stanton cites in her  
10 testimony is a basis for inaction or decision by this  
11 Board not to approve the proposed project?

12 A. And I have somewhat addressed that already,  
13 but no, I don't. There's always going to be some  
14 uncertainty in human knowledge, and again I cited the  
15 example of climate change. That's not a reason for us not  
16 to act, and I think given the variety of data that we  
17 have, the new data that we're getting from the University  
18 of Texas study that I just talked about, greenhouse gas  
19 reporting rule, the uncertainty to me seems small.

20 The difference in emissions between gas and  
21 oil that we looked at is fairly large. So the likelihood  
22 that something brand new is going to come along that's  
23 going to change the fundamental conclusion that gas has --  
24 greenhouse gas emissions in oil seems to be very unlikely.

25 MS. HAYDEN: With that I move the  
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1 admission of exhibit Petitioner Surrebuttal  
2 JLB 1 and the witness is free to be cross  
3 examined.

4 CHAIRMAN VOLZ: Any objection to the  
5 exhibit?

6 MS. LEVINE: No.

7 CHAIRMAN VOLZ: Okay. It's admitted.

8 (Exhibit JLB 1 was admitted into the  
9 record.)

10 CHAIRMAN VOLZ: Ms. Levine, do you have  
11 questions for this witness?

12 MS. LEVINE: Yes. Thank you.

13 CHAIRMAN VOLZ: Thank you.

14 CROSS EXAMINATION

15 BY MS. LEVINE:

16 Q. Good morning, Mr. Bluestein.

17 A. Good morning.

18 Q. I would like to start with some questions  
19 regarding your surrebuttal exhibit. Do you have that  
20 available?

21 MS. HAYDEN: I'll hand the witness --

22 A. I just want to make sure. Yes.

23 CHAIRMAN VOLZ: Are you talking about  
24 the one we just admitted JLB 1?

25 MS. LEVINE: Yes.

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1 MS. HAYDEN: Just one moment. I'm not  
2 sure this is the same one that's been marked.  
3 I want to make sure he has the right document.

4 CHAIRMAN VOLZ: Okay. So you may go  
5 ahead.

6 BY MS. LEVINE:

7 Q. The measurements included in this surrebuttal  
8 exhibit address only the United States; is that correct?

9 A. That's correct.

10 Q. And the estimated uncertainty for these  
11 estimates is -- estimated uncertainty for the estimates  
12 based on this evaluation is roughly 20 percent; is that  
13 correct?

14 A. I think there are different uncertainties for  
15 the different components.

16 Q. Could you take a look at page 5 of the  
17 exhibit? First column the heading under implications for  
18 national emissions estimates, the first sentence of the  
19 second full paragraph, what does that state please?

20 A. Right. That says approximately 20 percent.

21 Q. Thank you.

22 A. But just to be clear that's for the national  
23 -- that's extrapolating the results of this study to the  
24 national inventory, but yes that's right.

25 Q. The analysis that you provided in this case  
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1 was not a full life cycle greenhouse gas analysis for this  
2 project; is that correct?

3 A. A few people have said that. I think it is,  
4 but I would be interested to hear what's missing.

5 Q. Your analysis was not based on any data  
6 specific to the Vermont Gas Systems system; is that  
7 correct?

8 A. That is correct except for the source of the  
9 gas. Right.

10 Q. And you recognize that to the extent your  
11 analysis relies on United States Environmental Protection  
12 Agency regulations these regulations do not apply or  
13 affect sources from Canada; is that correct?

14 A. That's correct, and we didn't apply them to  
15 Canadian components.

16 Q. And the Canadian component was about 85  
17 percent of what would be delivered?

18 A. Correct.

19 Q. And your analysis compared only emissions of  
20 natural gas with oil and biofuels, correct?

21 A. Correct, and the benefit that we calculated  
22 was only related to that component.

23 Q. You provided no analysis or comparison to  
24 renewables such as solar, wind, or biomass; is that  
25 correct?

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1 A. That's correct.

2 Q. And in general terms --

3 A. Well biomass except for the biofuel. Right.

4 Q. And in general terms would you agree that over  
5 the life time of this project, which has been represented  
6 to be 50 to 100 years, in order to meet climate change  
7 goals more non-fossil fuels will need to be used?

8 A. Yes.

9 Q. You are a mechanical engineer, correct?

10 A. Correct.

11 Q. And you have a bachelor's degree in mechanical  
12 engineering?

13 A. Correct.

14 Q. And a bachelor's degree in film studies?

15 A. And French.

16 Q. And French. Missed that one. It's helpful in  
17 this part of the country. But you did not have any  
18 advanced degrees specifically concerning climate change;  
19 is that correct?

20 A. That's correct. The study that we did was not  
21 a climate change analysis per se. It was an analysis of  
22 the emissions from oil and gas producing equipment which  
23 is more a mechanical engineering question.

24 Q. And you were asked some questions in the  
25 course of your surrebuttal about taking action in the face  
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1 of uncertainty. Do you have those in mind?

2 A. Yes.

3 Q. And would you agree that it's important to  
4 make policy decisions in the face of uncertainty and then  
5 to take that uncertainty into account?

6 A. Yes.

7 Q. And regarding the questions or rather the  
8 responses to questions on the western study where direct  
9 measurements were taken, do you recall those?

10 A. Yes.

11 Q. You would agree that that provides one data  
12 point that is based on actual measurement?

13 A. It's based on actual measurement of methane in  
14 the atmosphere, not direct measurement of any emitting  
15 equipment.

16 Q. And your studies or analysis are not based on  
17 any specific data regarding Canadian production; is that  
18 correct?

19 A. We do reference one study that discusses the  
20 practice of emissions from well completions which is the  
21 basis for our assessment of the difference between those  
22 emissions from Canadian production versus U.S., but that  
23 was the only data point involved.

24 Q. And you compared in your surrebuttal the  
25 United States versus Canadian production. I believe you  
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1 represented that the producers are largely the same  
2 whether they are in Texas or Alberta. Is that a fair  
3 characterization?

4 A. Yes.

5 Q. Are the producers largely the same whether  
6 they are in Texas or Alberta or Africa or South America?

7 A. Well no. There is no shale gas production in  
8 Africa or South America currently. So actually some of  
9 the producers are active in all of those places, but the  
10 kinds of production -- gas production that are the primary  
11 growth area in North America are not really happening  
12 anywhere else except in very infant stage.

13 Q. And is that in part because other parts of the  
14 world have not allowed that type of extraction?

15 A. No. They are greatly looking forward to it,  
16 but it's -- there are a lot of issues about differences in  
17 ownership of natural resources and fracking equipment is  
18 too big for the roads in Germany and stuff like that. So  
19 -- but there's certainly a lot of anticipation for similar  
20 development in other parts of the world.

21 MS. LEVINE: That's all I have. Thank  
22 you.

23 CHAIRMAN VOLZ: Mr. Saudek.

24 MR. SAUDEK: Thank you, Mr. Chairman. I  
25 just have a couple questions.  
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## CROSS EXAMINATION

BY MR. SAUDEK:

Q. Mr. Bluestein, you used a 100-year life cycle comparison when you were comparing the oil and gas greenhouse gas effects, correct?

A. Yes.

Q. And even under that methane has a much greater potential for greenhouse gas than carbon dioxide, correct?

A. Yes.

Q. If you had used a 20-year life cycle, the difference would have been even greater, correct, the methane being much stronger than CO2?

A. I haven't done the actual comparison, but just to be clear these global warming potentials are defined by the UN International Protocol on Climate Change and they define three levels; the 100 year which we used and which all the other analysts involved in the case used and is the standard for the EPA and the UN, the 20-year which is being referenced here, and a 500-year value.

So one can look at the 20-year which would be higher, one can look at the 500-year which would be lower, the 100-year which we used is the standard for the EPA, for the State of Vermont, for the UN, and so yeah you could use any one of those if you wanted to, but the standard is 100 year.

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1           Q.       Suppose we were concerned, though, about 20  
2 years because some of us won't be around 100 years from  
3 now. The point is that in a 20-year analysis methane  
4 would be a more potent gas and for greenhouse gas effect  
5 and the comparison between oil and natural gas would be  
6 quite different and oil would be -- there would be at  
7 least less of a gap between the two of them?

8           A.       Certainly from an analytical perspective it  
9 would be different. I think everyone has agreed that we  
10 need to reduce methane emissions to address climate  
11 change. So from a policy perspective I'm not sure what  
12 the difference is.

13                   I think the other point to make is that if  
14 we're going to look at short term climate forcing -- short  
15 term climate forcers, the most potent is what's called  
16 black carbon and the main source of black carbon is oil  
17 combustion.

18                   So if we were going to look at short term at  
19 least in this context -- also biomass to some extent. So  
20 if we were going to look at short term climate forcers, I  
21 think we then want to bring in black carbon and that might  
22 change the equation as well. So --

23           Q.       Well when the UN Environmental Protection  
24 looked at these things, in fact, methane and black carbon  
25 were among the particular greenhouse gases that they  
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1 identified as bearing watching in the short term; is that  
2 correct?

3 A. Right.

4 Q. In your comparison between oil and natural gas  
5 you used seven percent biofuel, correct?

6 A. Yes.

7 Q. Did you do any calculations using higher  
8 levels of biofuel?

9 A. No, we did not.

10 Q. If you had, other things being equal, it would  
11 have reduced the greenhouse gas effects from oil, correct?

12 A. Correct.

13 Q. Are you aware or were you made aware that  
14 Vermont oil distributors are now delivering B20 levels of  
15 biofuel to some customers?

16 A. I was not aware of that.

17 MR. SAUDEK: That's all I have. Thank  
18 you.

19 CHAIRMAN VOLZ: Thank you. Does the  
20 Department have questions for this witness?

21 MS. PORTER: The Department doesn't have  
22 any questions. Thank you.

23 CHAIRMAN VOLZ: Okay. We have some  
24 questions.

25 MR. YOUNG: I was actually going to ask  
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1                   --

2                   CHAIRMAN VOLZ: Nobody else signed up  
3                   for cross for this witness. That's why I'm  
4                   going to us next. Obviously everybody will  
5                   get a chance to do followup on our questions,  
6                   but it would be limited to followup.

7                   MR. YOUNG: Good morning, Mr. Bluestein.  
8                   It's Mr. not Dr.?

9                   MR. BLUESTEIN: It is Mr.

10                  MR. YOUNG: Just want to make sure I'm  
11                  doing it correctly. I just wanted to  
12                  understand something I was going to ask Dr.  
13                  Stanton because it's in your testimony, but  
14                  you have now opened it up.

15                  The U.S. IPCC third assessment has the  
16                  different values that you just described, the  
17                  20-year, 100-year, and the 500-year values for  
18                  essentially methane to CO2 conversion, right?

19                  MR. BLUESTEIN: Right.

20                  MR. YOUNG: Why is there a difference?  
21                  Methane is methane.

22                  MR. BLUESTEIN: Okay. So different  
23                  compounds have different life in the  
24                  atmosphere. So CO2 has a very long life in  
25                  the atmosphere. Like a thousand years.

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1 Methane degrades quickly. So it's not there  
2 as long. It has a higher value, but it  
3 degrades rapidly. So when you average it over  
4 different periods you get a different -- you  
5 know, if it's very short, you're seeing that  
6 full value. When you average it over 100  
7 years you're taking that initial pulse and  
8 spreading it out over a long time. If you  
9 take it out 500 years it's even longer, and so  
10 if you're really interested in this, you can  
11 look at a paper by Ramon Alvarez, et al. where  
12 they actually try to account for the time  
13 function of the different components; in  
14 particular, methane, and it's interesting.  
15 It's a little dense, but anyway one of the  
16 conclusions they come to is that even taking  
17 account of that time value at the current  
18 inventory levels substituting coal -- methane  
19 for coal is a no brainer, and that at the  
20 levels that we expect -- I expect to see from  
21 the gas industry substituting gas for  
22 automotive fuel or vehicle fuels will also be  
23 a positive. But anyway that's the immediate  
24 answer to your question.

25 MR. YOUNG: So I assume the reason for  
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1 including the different values, I guess what  
2 confuses me is presumably there's going to be  
3 more methane added over time. So it wasn't  
4 apparent to me why you would degrade it.

5 Is the assumption essentially over time  
6 we're going to be reducing methane emissions  
7 and that's why you should degrade this value?  
8 I mean is that sort of an implicit assumption  
9 in that approach?

10 MR. BLUESTEIN: Well, you know, these  
11 values are purely scientific artifacts, right,  
12 so that was the impetus for the paper that I  
13 mentioned, but the values are purely  
14 scientific artifacts, and from the perspective  
15 that, you know, you're doing long term  
16 atmospheric modeling, I already said I'm not  
17 an atmospheric scientist, but if you're doing  
18 atmospheric modeling looking at a 100-year  
19 horizon and looking at the emissions in each  
20 year going forward with that horizon in effect  
21 I think that's what they are doing.

22 MR. YOUNG: Thank you.

23 CHAIRMAN VOLZ: I had just a point of  
24 information. You might not be the right  
25 witness for this. Do you have any idea what

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1 percentage of fracked gas is actually coming  
2 into Vermont Gas's system from Canada?

3 MR. BLUESTEIN: Well I think --  
4 essentially I'll defer to others, but I think  
5 most, if not all, the gas in Alberta right now  
6 is fracked gas, and gas from hydraulic  
7 fracturing is the growth area for natural gas  
8 in North America, and in a study that's here  
9 that we did for New York City a couple years  
10 ago I think we said it was 30-ish percent now  
11 and likely to increase to -- I have to refer  
12 to it, but the majority will be from hydraulic  
13 fracturing, and I think in Vermont -- the  
14 Vermont Gas inventory now the majority is from  
15 fracturing.

16 CHAIRMAN VOLZ: Thank you. Any followup  
17 to our questions? Okay. Any redirect?

18 MS. HAYDEN: Just a couple of quick  
19 questions.

20 REDIRECT EXAMINATION

21 BY MS. HAYDEN:

22 Q. Mr. Bluestein, I think it was Ms. Levine that  
23 asked this question. Your study -- she wanted to know --  
24 well establish the fact that your study, your life cycle  
25 analysis did a comparative analysis between oil and  
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1 natural gas but not between natural gas and renewables,  
2 and so here's the first part of my question. Why focus  
3 your life cycle analysis for this expansion project on the  
4 comparison between oil and natural gas?

5 A. Well the majority of the heating customers  
6 currently are burning oil, and Ms. Simollardes did a  
7 comparison between oil and propane, and Dr. Stanton's  
8 testimony addressed oil and propane, and so we focused on  
9 those as well.

10 Q. And in your opinion was Dr. Stanton's  
11 emissions analysis a life cycle analysis?

12 A. No. She in her responses she said that it was  
13 not life cycle analysis and she agreed to that. She had  
14 not included the upstream emissions from gas in parallel  
15 with the upstream emissions that she listed -- sorry. She  
16 did not add the upstream emissions from oil in parallel  
17 with the upstream emissions she had estimated for natural  
18 gas, and then also she in her most recent response agreed  
19 with the point that she had used the wrong factor for the  
20 density of natural gas, and agreed with the revised  
21 analysis that I did and Mr. Poor did which resulted in, by  
22 her estimate, with the corrected density and without the  
23 upstream emissions from oil showing even then natural gas  
24 has lower greenhouse gas -- life cycle greenhouse gas  
25 emissions than oil.

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1 MS. HAYDEN: I think we're done.

2 CHAIRMAN VOLZ: Thank you. You're  
3 excused, Mr. Bluestein.

4 MR. BLUESTEIN: Thank you.

5 CHAIRMAN VOLZ: All right. As I  
6 understand it we've run out of witnesses for  
7 right now; is that correct? Yes, Mr. Saudek.

8 MR. SAUDEK: Mr. Chairman, might this be  
9 a good time to admit the Sweetser testimony?  
10 I have given the reporter the testimony and  
11 the exhibits, and I think Ms. Hayden has some  
12 exhibits that she wants to put in, in  
13 connection with that.

14 CHAIRMAN VOLZ: I do. So you're moving  
15 to admit the Sweetser testimony. Are there  
16 exhibits with that?

17 MR. SAUDEK: And seven exhibits.

18 CHAIRMAN VOLZ: Is there any objection  
19 to that? Okay. Then they are admitted.

20 (The Prefiled Testimony of Richard S.  
21 Sweetser was admitted into the record.)

22 (Exhibits marked VFDA RSS 1-7 were  
23 admitted into the record.)

24

25

1 CHAIRMAN VOLZ: And, Ms. Hayden, you  
2 have some exhibits you want to move in, in  
3 connection with that testimony as well?

4 MS. HAYDEN: I do, and they have been  
5 provided to the Board and the parties. They  
6 are marked as exhibit Petitioner Cross VFDA  
7 12, 13, and 14, VFDA 12 is answer 1-48 to  
8 Petitioner's discovery, VFDA 13 is answer 1-53  
9 to Petitioner's discovery, and VFDA 14 is  
10 answer 1-55 to Petitioner's discovery, and all  
11 of these were answers provided by Mr. Sweetser  
12 and I understand from Mr. Saudek that he has  
13 no objection.

14 CHAIRMAN VOLZ: Okay. Is there any  
15 objection to admitting those exhibits?

16 MR. SAUDEK: No.

17 CHAIRMAN VOLZ: All right. They are  
18 admitted as well.

19 (Exhibits marked Petitioner Cross VFDA  
20 12-14 were admitted into the record.)

21 CHAIRMAN VOLZ: And does that conclude  
22 what you need to address right now, Mr.  
23 Saudek?

24 MR. SAUDEK: I'm sorry.

25 CHAIRMAN VOLZ: Are you done, Mr.  
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1           Saudek? Do you have anything else?

2           MR. SAUDEK: I'm done.

3           CHAIRMAN VOLZ: Okay. Good.

4           MS. DILLON: Mr. Chairman, I would like  
5 to move the admission of Mr. Merrill's  
6 testimony. He's the ANR witness. He offered  
7 direct and rebuttal testimony in addition to  
8 an exhibit ANR JM 1.

9           CHAIRMAN VOLZ: Okay. Any objection to  
10 admitting those?

11          MS. HAYDEN: No objection.

12          CHAIRMAN VOLZ: Okay. Those are  
13 admitted as well.

14          (The Prefiled Testimony of Jeff Merrell  
15 was admitted into the record.)

16          (Exhibit ANR JM 1 was admitted into the  
17 record.)

18

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1 MS. DILLON: Thank you.

2 CHAIRMAN VOLZ: Any other housekeeping  
3 matters? All right. Then the next -- so, Ms.  
4 Levine, when do you think we can expect your  
5 witness to be here?

6 MS. LEVINE: I expect her to be here at  
7 1.

8 CHAIRMAN VOLZ: Okay. So why don't we  
9 take our lunch break now and start at 1. Does  
10 that work for folks? Good. See you at 1  
11 o'clock. Thanks.

12 (Luncheon recess.)

13 CHAIRMAN VOLZ: We're back from lunch  
14 and we would like to get started again. One  
15 important announcement which I was just  
16 reminded of at lunch time which is that we  
17 have to be out of this room at 4:30 today  
18 because there's another event going on. So we  
19 can't run over. I'm hoping we'll be done  
20 before then, but in case we need to kind of  
21 wind down by 4:15 to be out the door by 4:30.  
22 So just to keep that in mind during your cross  
23 examination. Thank you.

24 BOARD MEMBER COEN: Want to raise your  
25 right-hand?

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1 Elizabeth Stanton,

2 Having been duly sworn, testified

3 as follows:

4 BOARD MEMBER COEN: Please state your  
5 name for the record.

6 DR. STANTON: Elizabeth Ann Stanton.

7 DIRECT EXAMINATION

8 BY MS. LEVINE:

9 Q. Good afternoon Dr. Stanton.

10 A. Good afternoon.

11 Q. Do you have before you the direct testimony of  
12 Elizabeth A. Stanton dated June 24, 2013?

13 A. I do.

14 Q. As well as exhibits CLF EAS 1 through CLF EAS  
15 11?

16 A. I believe so. Yes.

17 Q. And was your direct testimony prepared by you  
18 or under your supervision?

19 A. Yes.

20 Q. And the exhibits are matters either prepared  
21 by you or relied on you in preparing your direct  
22 testimony?

23 A. That's correct.

24 Q. And do you also have your rebuttal testimony  
25 dated August 14?

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1           A.       I do.

2           Q.       And was that prepared by you or under your  
3 supervision?

4           A.       It was.

5           Q.       And your surrebuttal testimony dated September  
6 13 and exhibit CLF EAS 12?

7           A.       I have the surrebuttal and I believe that this  
8 is the exhibit. Yes.

9           Q.       And those are prepared by you or under your  
10 supervision?

11          A.       That's correct.

12          Q.       Do you have any corrections to make to your  
13 testimony?

14          A.       My surrebuttal makes a correction to my direct  
15 testimony.

16                   MS. LEVINE: I move the admission of Dr.  
17 Stanton's direct testimony, rebuttal  
18 testimony, and surrebuttal testimony, and  
19 exhibits CLF EAS 1 through CLF EAS 12.

20                   CHAIRMAN VOLZ: Any objection?

21                   MS. HAYDEN: No objection.

22                   CHAIRMAN VOLZ: Okay. They are  
23 admitted.

24                   (The Prefiled Testimony of Elizabeth A.

25                   Stanton was admitted into the record.)  
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1 (Exhibits marked CLF EAS 1-12 were  
2 admitted into the record.)

3 MS. LEVINE: The witness is available  
4 for cross examination.

5 CHAIRMAN VOLZ: Good. Ms. Hayden, you  
6 have cross for this witness?

7 MS. HAYDEN: I do.

8 CHAIRMAN VOLZ: Why don't you go ahead.

9 CROSS EXAMINATION

10 BY MS. HAYDEN:

11 Q. Good afternoon.

12 A. Good afternoon.

13 Q. Dr. Stanton, I spoke with your counsel and you  
14 have also on the table in the top left corner a transcript  
15 from your deposition. I just want you to identify this  
16 for the record. It's a deposition of Elizabeth Stanton  
17 that was taken by phone dated September 4, 2013. Have you  
18 previously reviewed this document?

19 A. I have. Yes.

20 Q. And do you recognize the errata sheet that is  
21 placed on top of the document?

22 A. I do.

23 Q. Was that prepared by you?

24 A. Yes.

25 Q. Okay, and with the corrections noted in the  
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1 errata sheet are there any other corrections to your  
2 deposition transcript?

3 A. Not that I'm aware of.

4 Q. Okay. Thank you. I just wanted to establish  
5 that because I may have some questions for you regarding  
6 your deposition. One of the corrections that you made in  
7 your deposition transcript is that you've changed the  
8 words -- I think I asked you whether you were a climate  
9 scientist and you corrected that to state that you're not  
10 a climate scientist you're a climate ecologist, correct?

11 A. No. I'm an economist.

12 Q. Did I say ecologist? I apologize.

13 A. I could have sworn that when you asked me that  
14 question on the phone you asked if I was a climate  
15 economist and that was the question I thought I was  
16 answering, and my answer would have been yes I am a  
17 climate economist. I am not a scientist.

18 Q. Okay, and prior to this case you have never  
19 estimated the methane leakage rate for natural gas  
20 systems, correct?

21 A. That's right.

22 Q. And you've never calculated the density of  
23 methane prior to this case, correct?

24 A. No.

25 Q. And I think you just discussed a correction  
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1 that you made to your testimony, the original testimony,  
2 in the surrebuttal, and one of those corrections was  
3 correcting the density of methane that you used in your  
4 original calculation, correct?

5 A. Yes. That's right.

6 Q. And with a methane leakage rate of three  
7 percent that you utilized in your original calculations  
8 once corrected for the proper density of methane it's true  
9 that your analysis reflects that this project will result  
10 in a decrease in greenhouse gas emissions?

11 MS. LEVINE: Objection. That's a  
12 compound question. There's many pieces to  
13 that. Perhaps the witness can answer it, but  
14 if not --

15 BY MS. HAYDEN:

16 Q. I would like to know if the witness found it  
17 difficult to answer.

18 A. Well I lost track of it now. So can you start  
19 again with it?

20 Q. Okay. You used a 3 percent density -- a 3  
21 percent leakage rate in your calculation of greenhouse gas  
22 emissions for this project, correct?

23 A. In my direct testimony that's right.

24 Q. That's correct, and the density of methane  
25 that you used you've now corrected. It was I believe 77  
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1 pounds per MCF and you've now corrected it to be 42 pounds  
2 per MCF?

3 A. That's right.

4 Q. And so with the methane leakage rate of 3  
5 percent corrected for the correct density of methane, your  
6 analysis now shows a reduction in greenhouse gases at a 3  
7 percent leakage rate, correct?

8 A. Well I actually made two corrections to it,  
9 not just one, and then also looked at a range of different  
10 leakage rates in the analysis that I did.

11 Q. I understand that, and I'm asking you about  
12 the three percent leakage rate that was in your original  
13 testimony. Your computation now reflects a reduction in  
14 greenhouse gases associated with this project?

15 A. Yes. If you make two assumptions, yes.

16 Q. Thank you. You took the -- your discovery  
17 response 52 stated that you took the density of methane  
18 from your calculation -- that you used for your  
19 calculation from the Liquid Gas Encyclopedia?

20 A. Yes.

21 Q. When you did that was it your assumption there  
22 was liquid gas that would be in the Vermont Gas pipeline?

23 A. It was not -- I was looking for an appropriate  
24 methane density to use and chose the incorrect one. I was  
25 not provided with the methane density. It wasn't part of  
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1 the original analysis that I was replicating.

2 Q. Okay. And in this case you did not prepare a  
3 life cycle analysis of greenhouse gas emissions associated  
4 with this project; is that correct?

5 A. No. No. I have not.

6 Q. And in your discovery you've admitted that you  
7 have never prepared a life cycle analysis of greenhouse  
8 gas emissions for a natural gas system?

9 A. That's correct.

10 Q. And it's also true that in the course of your  
11 professional career you have not advised clients relating  
12 to matters associated with reporting requirements under  
13 the EPA greenhouse gas reporting rule?

14 A. No, I have not.

15 Q. Okay. And you've never prepared a publication  
16 or report that analyzes the reporting requirements under  
17 the greenhouse gas reporting rule?

18 A. No, no, I haven't.

19 Q. And you haven't analyzed the extent to which  
20 the greenhouse gas reporting rule may or may not impact  
21 the U.S. EPA greenhouse gas inventory data for emissions  
22 from natural gas systems?

23 A. Sorry. How the rule itself may impact on the  
24 emissions, have I analyzed that? No, I haven't.

25 Q. Okay. And you have not reviewed the new  
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1 source performance standards -- the EPA new source  
2 performance standards in any detail, correct?

3 A. You're referring to the new performance  
4 standards for gas fields?

5 Q. Yes.

6 A. No, I have not.

7 Q. And it's also true that you have not performed  
8 any analysis or analyzed the impact of the U.S. EPA new  
9 source performance standards on methane leakage rates from  
10 natural gas systems?

11 A. No, I haven't.

12 Q. Okay. And you did not rely on the new source  
13 performance standards in anyway for the development of  
14 your greenhouse gas estimate for the Addison Natural Gas  
15 Project?

16 A. No.

17 Q. At -- your prefiled at page 9 refers to four  
18 life cycle analyses prepared in the last two years?

19 MS. LEVINE: Which prefiled?

20 MS. HAYDEN: Your direct prefiled page 9  
21 answer 15.

22 A. Yes.

23 Q. And it's true that these four studies that are  
24 listed you did not actually read any one of the four  
25 studies?

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1           A.       No.    Instead I reviewed a meta analysis of  
2 these studies.

3           Q.       And is that meta analysis the document that  
4 you referred to on the following page which is the World  
5 Resource Institute 2013 Report?

6           A.       That's right.  It's submitted as an exhibit.

7           Q.       That's your exhibit 6 I believe?

8           A.       Yes.

9           Q.       Okay.  And the 3 percent leakage rate that you  
10 describe in your original analysis and that you use to  
11 calculate greenhouse gas emissions for this project my  
12 understanding is that you developed that from the Table 1  
13 that appears at page 10 of your prefiled testimony?

14          A.       That's correct.

15          Q.       And for the record this is a table that  
16 essentially was lifted from the World Resource Institute  
17 or WRI report, correct?

18          A.       Yes.

19          Q.       How did you derive the 3 percent from the  
20 various values that are in that table?

21          A.       I took an average of the conventional and  
22 unconventional rates -- leak rates that are shown here.

23          Q.       And there are several columns in this table,  
24 Table 1, there are leak rates for conventional and  
25 unconventional, and then there are several columns next to  
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1 each of those for a low range and a high range. Do you  
2 see that?

3 A. Yes, I do.

4 Q. Did you factor in the columns, the values in  
5 the columns for a low or high range in your estimate of 3  
6 percent?

7 A. No. Those are already factored into the  
8 averages provided in the columns that are labeled as  
9 conventional and unconventional.

10 Q. Do you have -- do you know why the, for  
11 example, the Burnham life cycle analysis, which is the  
12 first one that's reflected on Table 1, what -- why the  
13 point 9 per seven leak rate is shown there versus the 5.47  
14 percent leak rate in the high range?

15 A. Do I know the specifics of the Burnham study?  
16 No, I do not.

17 Q. What about the Howarth study?

18 A. No.

19 Q. H-O-W-A-R-T-H which is the second life cycle  
20 analysis listed in the table. So you can't speak to and  
21 you don't know on what basis the low number or the high  
22 number reported in this Table 1, you know, what went into  
23 those ranges, correct?

24 A. No. I can't.

25 Q. Do you know whether any of those four studies  
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1 had a low and a high range or was that something that WRI  
2 developed?

3 A. I would be very surprised if WRI developed it.  
4 I understand this table to be showing the results from the  
5 studies.

6 Q. Okay. And so the dates of each of these  
7 studies was either 2011 or 2012, correct?

8 A. Yes.

9 Q. And so that would be before the implementation  
10 of the new greenhouse gas reporting rule, correct?

11 A. I don't have the date of that implementation  
12 in my head.

13 Q. Okay. What about the new source performance  
14 standards, do you know whether the dates of these studies  
15 precede or post date?

16 A. No, I don't.

17 Q. Okay. The WRI report discusses these various  
18 studies, but it did not itself derive a methane leakage  
19 rate by averaging the leak rates or the ranges of leak  
20 rates from these four studies, correct?

21 A. It's been a while since I read that report.  
22 I'm not sure of their methodology.

23 Q. Okay. Do you want to turn to page 15 of what  
24 you have marked as exhibit EAS 6?

25 A. Page 15?  
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1 Q. Yes. This is the WRI report. Do you see  
2 there are several bullets, one entitled methane leakage  
3 rate?

4 A. Yes.

5 Q. And the second sentence in that bullet, can  
6 you read it into the record starting with as points of  
7 reference?

8 A. As points of reference we calculated two total  
9 annual methane leakage rate estimates for U.S. natural gas  
10 systems in 2010. Do you want me to continue from there?

11 Q. The second sentence as well.

12 A. These leakage rates were 2.27 percent using  
13 2012 EPA GHG inventory data and 1.54 percent using 2013  
14 draft inventory data.

15 Q. Okay, and so the WRI didn't average out these  
16 prior studies or the leak rates that were identified in  
17 these prior studies. They actually did their own  
18 calculation and came up with something much lower than the  
19 3 percent, correct?

20 A. Yes. They had a different methodology.  
21 That's right.

22 Q. And do you know why in the WRI estimates the  
23 leak rates decreased from 2.27 to 1.54 percent -- 1.54  
24 percent between 2012 and 2013?

25 A. No. It seems from this text it has to do with  
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1 the particularities of the emissions recording in 2012  
2 versus 2013, but I'm not familiar with what exactly is  
3 different between those two years.

4 Q. Can you turn to page 5 of the WRI report?

5 A. Yes.

6 Q. And do you see there's a discussion under the  
7 heading the impact of EPA's new source performance  
8 standards?

9 A. Yes.

10 Q. Would you agree -- are you familiar with this  
11 section of the text?

12 A. Off the top of my head, no.

13 Q. Do you know what the term green completions  
14 means?

15 A. Yes, I do.

16 Q. Can you explain for the Board what that means?

17 A. Green completion is a term that's used for  
18 effectively capping the leaks particularly at a well. So  
19 it could be a variety of technology that are used to cap  
20 leaks as well and greatly decrease, maybe not to zero, but  
21 greatly decrease leaks at a well.

22 Q. And there's -- the second sentence in that  
23 section which starts with the rule -- the new EPA rules?

24 A. Yes.

25 Q. If you read through that, and I can have you  
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1 read it into the record but the Board has this document  
2 for the record, it's true that WRI is reporting and they  
3 have actually estimated that the new source performance  
4 standards are going to -- are estimated to reduce methane  
5 emissions to cut all upstream greenhouse gas emissions  
6 from shale gas operations between 40 to 46 percent below  
7 their projected trajectory in the absence of the rules.  
8 Do you see that?

9 A. I do see it. I don't see how it's very  
10 relevant to the matter at hand.

11 Q. So it wasn't -- and you said you hadn't  
12 reviewed the new source performance standards when you  
13 developed your analysis in this case?

14 A. Yes, I did not review them.

15 Q. Let me ask you this. If this project were  
16 connected to the -- if the Vermont Gas pipeline system  
17 were connected to the U.S. pipeline system as a result of,  
18 for example, expanding south to Rutland and into New York  
19 or some other direction so that it were interconnected  
20 with the U.S. system, do you think understanding the  
21 impact of the new source performance standards would be  
22 relevant to your analysis or to this proceeding?

23 A. Seems like -- you want me to answer a  
24 hypothetical question about what would happen if the gas  
25 were sourced not from Canada as it is, but instead from  
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1 the United States?

2 Q. Correct. Yes.

3 A. Then yes. It wouldn't be the only important  
4 thing, but yes it would have some relevance to the matter.

5 Q. Okay. Page 10 of your testimony.

6 A. Direct?

7 Q. Direct, yes.

8 A. Yes.

9 Q. You have a quote from the WRI report starting  
10 at line 9 which states that emissions from natural gas  
11 systems represent a significant source of global warming  
12 pollution in the U.S., reductions in methane emissions are  
13 urgently needed as part of the broader effort to slow the  
14 rate of global temperature rise, and then you have a  
15 reference to page two. Do you see that?

16 A. Yes.

17 Q. Can you turn to page 2 of the WRI report?

18 A. Yes.

19 Q. So as I understand it the quote that you have  
20 stated in your testimony is one of five key findings in  
21 the WRI report, correct?

22 A. Yes.

23 Q. You refer to the first finding only in your  
24 testimony?

25 A. Yes.

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1 Q. Do you agree that the second finding is that a  
2 goal of cutting methane leakage rates from natural gas  
3 systems to less than one percent can be achieved?

4 A. Sorry. Let me read it and then maybe you can  
5 ask me again. Yes. The question?

6 Q. The second key finding was that cutting  
7 methane leakage rates from natural gas systems to less  
8 than one percent can be achieved by reducing emissions by  
9 one-half to two-thirds below current levels through the  
10 widespread use of proven cost effective technology,  
11 correct?

12 A. Yes.

13 Q. And that was actually discussed at a fair  
14 length in this report. Okay. The third -- the fourth  
15 finding also speaks to the EPA rules and their impact on  
16 further reducing methane leakage rates, correct?

17 A. It's on that topic, yes.

18 Q. Did you read that portion of this report?

19 A. Yes.

20 Q. Is there a reason why you didn't include that  
21 in your testimony but instead just included the first  
22 finding?

23 A. Well in my reading of the WRI report I see it  
24 as having two important purposes. One is the one that I  
25 relied on which is bringing together current literature in  
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1 a meta analysis, and so it provides a useful, convenient,  
2 one place that's been brought together of a number of very  
3 current studies at the time of this writing that are from  
4 the published academic literature.

5 It also has another purpose, the WRI report  
6 does, which is it's making its own conclusions, making its  
7 own observations and analysis about what the current and  
8 expected future leak rates are. So I used it for the  
9 former purpose and not the latter.

10 Q. The Howarth report, which is again referring  
11 back to page 10 Table 1 of your testimony, that report or  
12 that study is discussed at various places at length in the  
13 WRI report. Do you agree with me?

14 A. Yes.

15 Q. And at page 16, for example, there's a  
16 discussion about -- and I'll let you get there --

17 A. 16, right?

18 Q. Yes.

19 A. Yes.

20 Q. Do you recall reading that?

21 A. Uh-huh.

22 Q. And it's under the topic of why do GHG -- why  
23 do life cycle GHG emissions estimates for shale gas differ  
24 so much, correct?

25 A. Yes.

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1           Q.       The third paragraph in that discussion talks  
2 about the largest potential source for methane emissions  
3 during preproduction occurs during the flowback stage of  
4 well completion. Do you see that?

5           A.       Yes.

6           Q.       And at the bottom of that paragraph there's a  
7 statement that Howarth was -- his estimates were  
8 criticized because of the methane venting -- the estimate  
9 of methane venting from Hanesville being at least 700  
10 percent too high.

11                   Did you take that into consideration when you  
12 decided to just do a straight average of the Howarth and  
13 the other three life cycle analysis that are listed on  
14 Table 1?

15           A.       Yes, and I should explain that the alternative  
16 that I think is being suggested here would be to remove  
17 the Howarth estimate or to remove any estimates that seem  
18 like they are further away from the center of the range,  
19 and I disagree with that as a methodology.

20                   I think it's very important to include all of  
21 the information in this kind of meta analysis and that we  
22 would do all of ourselves a disservice by excluding values  
23 in analysis like this that were out of the center of the  
24 range. We need to take into consideration all of those  
25 values.

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1 Q. All right. Well let's turn to the next page.  
2 The third paragraph down there's another discussion of the  
3 criticism of the Howarth report in the third paragraph.  
4 Had you read that previously?

5 A. Yes.

6 Q. And I think it's the third sentence into that  
7 paragraph, and they are talking about the magnitude of  
8 life cycle GHG emissions from the transmission stage,  
9 correct?

10 A. Yes.

11 Q. For this cycle stage it states Howarth, et al.  
12 bound their estimates using a variety of data sources  
13 including Russian pipeline data in which quote lost and  
14 unaccounted-for gas end quote is treated as one hundred  
15 percent vented, and my reading of this is that that was a  
16 -- WRI included that because that was a pretty significant  
17 shortcoming in the Howarth approach. Do you agree?

18 A. Yes, I think that's why they included it. I  
19 think all of the studies had shortcomings and I think  
20 that, as I said, it's important to include a full range of  
21 these studies.

22 The Howarth study in this particular meta  
23 analysis serves a really important purpose. We would have  
24 a problem with that as a study if it wasn't included, and  
25 that's that the other studies that are used in the meta  
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1 analysis are all based on exactly the same underlying  
2 data, whereas, the Howarth study is based on a different  
3 source. It's very valuable to a full understanding of the  
4 leakage rate.

5 Q. Are you aware of any US or Canadian  
6 transmission pipeline that vents one hundred percent?

7 A. No, but it's not the only assumption that's  
8 used in there and, you know, this isn't a full discussion  
9 of all of the assumptions used in all of the studies.

10 CHAIRMAN VOLZ: If you're moving to a  
11 different topic, just a quick clarification  
12 for the record. Could you define what you  
13 mean by meta analysis?

14 DR. STANTON: By meta analysis M-E-T-A.

15 CHAIRMAN VOLZ: That's what I thought.

16 DR. STANTON: And what I mean by that is  
17 that it's an analysis that takes a look at a  
18 literature and says what can we see by  
19 examining this literature as a whole and learn  
20 from it. Rather than just looking at one  
21 study I would come in and on top of the range  
22 of literature say what can I learn from the  
23 whole thing and synthesize it to come up with  
24 a result.

25 CHAIRMAN VOLZ: Thank you.  
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1 BY MS. HAYDEN:

2 Q. So I guess I have to ask would you then  
3 include everything even if you knew that there were values  
4 that were incorrect or based on invalid assumptions?

5 A. I think that if -- in the published peer  
6 reviewed literature if something has been superseded, if  
7 error has been confirmed in that way, then yes in a meta  
8 analysis I would remove that. So superseded meaning  
9 somebody was doing a series of studies and each year  
10 updated it, then no.

11 In a meta analysis I would say you would use  
12 the last one and not use the ones that came before it, and  
13 similarly if there was a record showing that something had  
14 been shown to be inaccurate in the peer reviewed  
15 literature, then yes I think that would be a good reason  
16 for leaving it out.

17 Q. The WRI report refers to -- it's Weber and  
18 Clavin and it's listed on Table 1 as Weber, but the  
19 document itself is often referred to the two authors as  
20 Weber and Clavin and their report does critique Howarth,  
21 correct?

22 A. There's a difference between critiquing  
23 something and showing that it's incorrect.

24 Q. But --

25 A. Yes. My understanding is that report  
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1 critiques it, but I don't see that as being the same  
2 thing.

3 Q. But you didn't read it so you don't know; is  
4 that correct?

5 A. I have not read it and I have not read the  
6 rebuttal to it.

7 Q. Okay. Your rebuttal testimony at page 6 --

8 A. Yes.

9 Q. -- refers to the April 2013 report by the U.S.  
10 Environmental Protection Agency on the first line.

11 A. Sorry. Yes. The Office of Inspector General,  
12 yes, and we corrected that it was a February report,  
13 right, and not a -- the OIG report is a February report.

14 Q. Okay, and in the cross exhibits that we've  
15 provided to you do you have with you exhibit Cross CLF 33  
16 which is the OIG report?

17 A. Yes.

18 Q. Can you turn to page 3 of that report? It's  
19 in the introduction section. There's some preliminary  
20 pages and then --

21 A. Page 3?

22 Q. Yes. Under the heading of EPA's emission  
23 inventories --

24 A. Yes.

25 Q. -- if you read page 3 and 4 of this OIG report  
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1 describes the two different EPA inventories, correct?

2 A. Yes.

3 Q. And you understand there's a difference  
4 between the National Emissions Inventory and EPA's  
5 greenhouse gas inventory, correct?

6 A. Yes, I do.

7 Q. And the National Emissions Inventory does not  
8 include greenhouse gas emissions, correct?

9 A. My best familiarity is with the greenhouse gas  
10 inventory report so I couldn't say.

11 Q. Have you ever reviewed the National Emissions  
12 Inventory?

13 A. I have not.

14 Q. Okay, and the first bullet on page 4 explains  
15 that it's a nationwide inventory containing detailed  
16 estimates of both criteria and toxic air emissions. Do  
17 you see that?

18 A. I do.

19 Q. Do you know which toxic air emissions are  
20 covered by the National Emissions Inventory or NEI?

21 A. No, I don't.

22 Q. You quoted from page 20 of the -- this OIG  
23 report at page 6 of your rebuttal testimony. Can you  
24 point me to where the statement that you make in your  
25 testimony is made in the OIG report? Is it the sentence  
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1 that immediately precedes the heading limited data could  
2 affect decision making impacting human health and the  
3 environment?

4 A. Yes, it is.

5 Q. And the quote in your testimony states that  
6 incomplete emissions data such as the gaps described above  
7 for non-point sources will lead to modeling results that  
8 underestimate the air quality impacts from oil and gas  
9 production activities, correct?

10 A. Yes.

11 Q. I'll strike that or withdraw that question.  
12 Turn back to page 19. The data gaps that are referenced  
13 are the incomplete data in the NEI, correct?

14 A. Yes.

15 Q. Okay. And if you could turn on page 20 to the  
16 conclusion section?

17 A. Yes.

18 Q. And read the last two sentences?

19 A. This limited data coupled with poor quality,  
20 insufficient emissions factors, and incomplete NEI data  
21 hamper EPA's ability to assess air quality impacts from  
22 selected oil and gas production activities.

23 Q. And the last two sentence -- the sentence  
24 prior to that, however EPA has limited directly measured  
25 air emissions data on criteria and toxic air pollutants  
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1 for several important oil and gas production processes.

2 So this document is referring to data gaps in the NEI  
3 inventory, correct?

4 A. Well I'm reading a few sentences here and  
5 certainly that last sentence says incomplete NEI data.

6 Q. Okay. Did your -- did your estimate of  
7 greenhouse gas emissions associated with this project take  
8 into consideration renewable energy sources?

9 A. Can you ask the question again?

10 Q. Did your emissions estimate -- greenhouse gas  
11 emissions estimate for the greenhouse gas emissions  
12 associated with this project, the Addison Natural Gas  
13 Project, take into consideration or address any renewable  
14 energy resources?

15 A. No.

16 Q. Okay. Just one minute. I have nothing  
17 further.

18 CHAIRMAN VOLZ: Okay. Thank you. Ms.  
19 Dillon, do you have questions for this  
20 witness?

21 MS. DILLON: No. Thank you.

22 CHAIRMAN VOLZ: I'm sorry. I couldn't  
23 hear you.

24 MS. DILLON: No. Thank you.

25 CHAIRMAN VOLZ: Mr. Saudek.  
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## CROSS EXAMINATION

BY MR. SAUDEK:

Q. There was some testimony this morning about hydraulic fracturing at the sources in Canada and emissions related to that. If there are substantial emissions related to extraction of natural gas emissions of methane in Canada, does that have an adverse effect on Vermont in terms of global warming?

A. So if there are emissions from natural gas extraction in Canada --

Q. Yes.

A. -- does it have an effect on Vermont?

Q. Yes.

A. I would say yes.

Q. Why would you say yes?

A. Well, as I understand it, the Vermont Gas is sourced primarily from Canada. Mr. Bouton's testimony said 85 percent from Canada. So to the extent Vermont is interested in the greenhouse gas consequences of its consumption of its actions, then it should be interested in the release of greenhouse gases regardless of the location where they are released. Greenhouse gases are a global pollutant. It's immaterial where they are released. It just matters that they are released.

Q. Do you think that in looking at this case the Capitol Court Reporters, Inc. (800/802) 863-6067

1 Public Service Board should be concerned about the 20-year  
2 life cycle effects as well as the 100-year life cycle  
3 effects of methane?

4 A. Yes. Both seem important.

5 Q. In fact, isn't it true that the 20 year is  
6 coming more to the forefront, that people are becoming  
7 more concerned with the nearer term effects because of the  
8 increase in global warming in recent years?

9 A. I'm not sure I could make a statement about  
10 what people are more concerned about.

11 Q. How about --

12 A. Have I over time become more concerned about  
13 near term effects? Is that it?

14 Q. Yes.

15 A. No. I think I'm at the same level of concern  
16 that I was five years ago.

17 MR. SAUDEK: I have nothing further.

18 CHAIRMAN VOLZ: Thank you. Ms. Porter.

19 MS. PORTER: The Department doesn't have  
20 any questions. Thank you.

21 MR. YOUNG: Good afternoon, Dr. Stanton.

22 DR. STANTON: Good afternoon.

23 MR. YOUNG: Just a few questions here.

24 You have three sets of testimony that you  
25 filed in this case.

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1 DR. STANTON: I did.

2 MR. YOUNG: And when I read your first  
3 set of testimony it seemed you were  
4 essentially suggesting that the natural gas  
5 pipeline may actually increase greenhouse gas  
6 emissions, and as I read the three sets and  
7 get to the end after the adjustments that you  
8 made such as for the density and some of the  
9 other adjustments that were recommended your  
10 numbers seem to show that in your base case  
11 scenario that actually the pipeline is likely  
12 to reduce greenhouse gases, but that there's  
13 significant uncertainty.

14 Is that a fair characterization of where  
15 you came out in the end?

16 DR. STANTON: No, it isn't.

17 MR. YOUNG: Okay. What did I miss?

18 DR. STANTON: I think that my reading of  
19 the -- well I can't say that I have read the  
20 record as a whole, but the portions of the  
21 record that I have read, testimony that I  
22 submitted, starting with Ms. Simollardes'  
23 testimony, my testimony, Mr. Bluestein's  
24 testimony, Mr. Poor's testimony, that reading  
25 all of these and taking that along as a

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1 process of the analysis that was being done  
2 becoming more accurate over time, that what I  
3 have learned in that is the concern that we  
4 all should have in this about several  
5 uncertainties that I don't think were revealed  
6 from the beginning, and one is the leak rate.  
7 We have all been talking about that.

8 I think we should be considering a range  
9 of leak rates since it does seem uncertain as  
10 to what the actual leak rate at this time both  
11 because there are real actual uncertainties  
12 about this. It's something that is difficult  
13 to measure. There's a process going on now  
14 for doing a better job of measuring that in  
15 the U.S., however, we know that this gas isn't  
16 coming from the U.S. on the whole. We're not  
17 sure what the leak rate is in Canada.

18 Those are all good reasons to want to  
19 look at a range, and then I think one of the  
20 other important uncertainties, there may be  
21 other ones, but the other one that stands out  
22 for me is that the analysis that we've all  
23 been working on and improving is based on an  
24 assumption that the Addison pipeline will only  
25 be used to -- as replacement, as a conversion

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1 from fuel oil and propane just to convert  
2 those uses over, but my understanding of the  
3 testimony that there is really a lot more  
4 capacity, another third of capacity in that  
5 line, and so it seems to me that a more  
6 appropriate analysis would be looking at this  
7 line used to its full capacity that we should  
8 at least be considering the line used to its  
9 full capacity in addition to considering what  
10 if we just used it to replace current fuel  
11 uses. And my analysis of this is that even if  
12 the leak rate were zero, and I don't think  
13 anybody is suggesting that it is, but even if  
14 the leak rate were zero, if you use that line  
15 to pull capacity you get an emissions increase  
16 for Vermont.

17 MR. YOUNG: Let me try to impact a  
18 couple different things in what you just said.  
19 Let's just do a straight -- I'm just trying to  
20 make sure I understand your analysis.

21 If you just assume I believe the 3  
22 percent leak rate, which I realize you have  
23 raised some uncertainty about, and you assume  
24 that you're just measuring not incremental  
25 usage which is the part you just added and

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1 I'll get to that in a minute, but just the  
2 conversion and it were a straight  
3 displacement, and I realize you don't accept  
4 that assumption, but assuming that to the  
5 extent you're displacing natural gas has some  
6 -- is likely to have some greenhouse gas  
7 benefits. Is that where your conclusion was?

8 DR. STANTON: At the 3 percent leak  
9 rate, yes.

10 MR. YOUNG: Okay, and that was what I  
11 was trying to get at in my first question. So  
12 beyond that your basic analysis on that  
13 assumption shows it could be a net positive  
14 for greenhouse gases, but you have two  
15 additional concerns. Number one, uncertainty  
16 in that number, and, number two, the potential  
17 for incremental usage that simply increases  
18 greenhouse gases generally?

19 DR. STANTON: Yes in that this line has  
20 more capacity than we're seeing being used.

21 MR. YOUNG: And the net of that is why  
22 you're expressing concerns about this is  
23 likely to lead to an increase of greenhouse  
24 gases generally?

25 DR. STANTON: No because I think that  
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1           just the one change -- so even if the leakage  
2           rate were zero or as low as -- if you want to  
3           bring it down from three as low as you want to  
4           go, just that one change, looking at using the  
5           line to full capacity that alone makes it an  
6           emissions increase.

7                   CHAIRMAN VOLZ: But the line has the  
8           capacity that it has because the company is  
9           putting in that size in order to go further  
10          than just this extension. It's planning to go  
11          down to Rutland and it's also building in  
12          capacity to potentially serve International  
13          Paper. If we don't approve those extensions,  
14          then that capacity may not be used. If we do  
15          approve those extensions, there will be  
16          further displacement occurring that's not  
17          being reflected in your analysis when you take  
18          it out to the full capacity. So how do you  
19          deal with that? How do you respond to that?

20                   DR. STANTON: I don't know the  
21          particularities of how you make your  
22          decisions, but it seems to me that if that's  
23          the size of the line, then even if it's not  
24          extended, if the decision is made not to allow  
25          the extension, you could still have some new  
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1 natural gas CC, a new industrial plant sited  
2 along that line to use it to full capacity.

3 CHAIRMAN VOLZ: Okay.

4 MR. YOUNG: You're making the assumption  
5 that to the extent there is capacity that is  
6 presently not dedicated for use that there is  
7 a reasonable likelihood that that could be a  
8 new use as opposed to a change in use from  
9 another facility that might not be using  
10 propane or fuel oil?

11 DR. STANTON: Yes. I think it's  
12 something the Board should take into  
13 consideration.

14 MR. YOUNG: The result of this is what I  
15 want to get to. Because of the uncertainty  
16 and because of your concern about the -- that  
17 this could lead to incremental greenhouse gas  
18 emissions you have a recommendation both in  
19 your rebuttal testimony and it's reiterated in  
20 your surrebuttal testimony that VGS should  
21 provide some funding for thermal efficiency  
22 for fuels other than natural gas, correct?

23 DR. STANTON: The thermal efficiency  
24 investments, yes.

25 MR. YOUNG: Right. You're correct.  
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1           Assuming we accepted your rationale how much  
2           were you thinking of? I mean are you talking  
3           statewide? Are you talking a particular  
4           region? Do you have particular ideas what  
5           that offset should be?

6           DR. STANTON: I do not have a number in  
7           mind for the appropriate offset. I do think  
8           it should be statewide. I think that Vermont  
9           takes its greenhouse gas responsibility as a  
10          state. There's a state inventory and that's  
11          how it's measured, and so offsets to it can  
12          appropriately be done for the state as a  
13          whole.

14          MR. YOUNG: Would this be part of say an  
15          all fuels efficiency program, a statewide all  
16          fuels efficiency program is what you're  
17          thinking of?

18          DR. STANTON: I think that would be a  
19          good and useful offset.

20          MR. YOUNG: Do you have any  
21          recommendations for what an appropriate  
22          measurement as to the level of that offset  
23          should be?

24          DR. STANTON: No. It's not something  
25          that I have considered. I'm sorry.

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1 MR. YOUNG: Okay. I think that covers  
2 my questions. Thank you very much.

3 CHAIRMAN VOLZ: Any followup questions  
4 to our questioning up here? Any redirect?

5 MS. LEVINE: Yes. A few questions.  
6 Thank you.

7 MS. HAYDEN: Sandy, just one thing. I  
8 did realize I didn't move in any of my cross  
9 exhibits and through the cross examination I  
10 eliminated a number of them, and I can do that  
11 after your redirect or whatever you prefer,  
12 but I do want to move in some of the cross  
13 exhibits that we circulated, but I'm going to  
14 reduce the number quite a bit based on the  
15 direct examination or cross examination.

16 CHAIRMAN VOLZ: Do you want to ask  
17 questions then we'll take this up?

18 MS. LEVINE: Yes.

19 CHAIRMAN VOLZ: Why don't we finish the  
20 cross then we'll take up what we're admitting  
21 or not admitting.

22 MS. HAYDEN: Okay.

23 REDIRECT EXAMINATION

24 BY MS. LEVINE:

25 Q. Good afternoon.  
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1           A.       Good afternoon again.

2           Q.       Starting from your most recent questions you  
3 were asked about the importance of the capacity of the  
4 pipeline in terms of greenhouse gas emissions. Do you  
5 have that in mind?

6           A.       I do.

7           Q.       Can you explain how your analysis included the  
8 capacity of using the gas in the pipe to serve the  
9 International Paper facility, Ticonderoga?

10          A.       Original direct?

11          Q.       No. Your later analysis.

12          A.       It didn't.

13          Q.       It just looked at the overall capacity of the  
14 pipeline?

15          A.       It looked at the capacity of the sort of the  
16 base project which is -- they were labeled in the original  
17 -- they were labeled with IP and without IP.

18          Q.       And Mr. Saudek asked you some questions  
19 concerning the 20-year effects versus 100-year effects of  
20 methane. Do you have those in mind?

21          A.       Yes.

22          Q.       Could you explain what the difference is?

23          A.       I think there are two differences that we can  
24 be talking about, both of which seem important, and one is  
25 just the period over which we're doing our analysis. If  
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1 we're looking at the cumulative emissions, then over how  
2 many years are we counting up those emissions. If we're  
3 counting up benefits, net present values of benefits, over  
4 how many years are we doing that, 20 or out to 100, but  
5 there's a second difference that may also come into effect  
6 and that's with the global warming potential, and as far  
7 as I know everyone in this docket has been using the 100  
8 year global warming potential. That's certainly what I  
9 used, and conceivably if somebody wanted to limit their  
10 analysis to 20 years, then they might also use the 20-year  
11 global warming potential possible.

12 Q. Is there a difference in the potential in 20  
13 years versus 100 years?

14 A. There's a large difference.

15 Q. By factors of what?

16 A. I think it's a factor of three.

17 Q. Can you explain why a meta analysis was  
18 helpful for you to use for purposes of this proceeding?

19 A. From my perspective the question of what's the  
20 appropriate leakage rate to use for methane is a broad  
21 question that's currently in academic dispute. It's a  
22 live question that's being worked on by any number of  
23 different researchers, not just in the U.S., around the  
24 world trying to figure out what are appropriate methane  
25 leakage rates to use.

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1 I think one of the things that we can see by  
2 the large variation in that literature is that it's not  
3 all uncertainty. It's not all good and bad measurements.  
4 There's also variation from one system to the next which  
5 is one of the reasons why I think it would be important to  
6 do system specific analysis in order to figure out what  
7 the actual emissions leakage rates are for Vermont Gas's  
8 gas.

9 So there is that variation going on, but the  
10 reason that I wanted to look at the meta analysis is it  
11 gave me a window into the state of the literature at that  
12 moment, and that's what I think is important is observing  
13 how this literature, which is active, which is a movement,  
14 is progressing as different people add their pieces to it.  
15 No one of those contributions to it is the answer to  
16 what's the leakage rate, but rather we look at that  
17 literature as a whole and we do our best to understand  
18 what the collective scientific community is moving towards  
19 as an understanding.

20 Q. And Miss Hayden pointed out a number of  
21 critiques of some of the specific studies that were used  
22 in the WRI report. Do you have those questions in mind?

23 A. Yes.

24 Q. Can you explain how those critiques of those  
25 specific studies affect your analysis?

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1           A.       They don't. I think that any time somebody  
2 publishes a scientific analysis other people have  
3 criticisms to make of it and that's good and is an  
4 important part of this collective process of coming to a  
5 better answer on any question. So to me it's not that  
6 important.

7                   It's important to look at the full range if  
8 something has been definitively disproven than to remove  
9 it, but aside from that keep in these different data  
10 points that are just evidence of a live and active  
11 discourse.

12          Q.       And if you know, can you tell me the status in  
13 terms of whether they were published or peer reviewed of  
14 the studies that were included in the WRI report?

15          A.       Off the top of my head, no, I can't.

16          Q.       And Mr. Young pointed out some of the changes  
17 in your calculations over time from June to September. Do  
18 you have those questions in mind?

19          A.       Yes.

20          Q.       Can you explain how your new calculations  
21 affect your conclusions regarding the greenhouse gas  
22 emissions impacts of this project?

23          A.       They don't. I still have the same conclusion.

24          Q.       Which is?

25          A.       That there's a risk to Vermont that this  
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1 project will increase its greenhouse gas emissions and  
2 that an appropriate action on the part of the Board would  
3 be to take steps to offset that risk to hedge that risk  
4 for Vermont.

5 Q. In response to a question from Ms. Hayden you  
6 indicated that some language in the WRI reporting was not  
7 relevant to the matter at hand. Do you recall that?

8 A. I can't remember which bit it was.

9 Q. Do you recall questions regarding the impact  
10 of the new source performance standard?

11 A. Yes.

12 Q. Can you explain the relevance of that standard  
13 to your analysis?

14 A. Yes. So there are all sorts of new source  
15 performance standards. I believe the only one we're  
16 talking about here is the new source performance standards  
17 that affect gas fields. So not the new source performance  
18 standard that's in the news today, for example, which is  
19 about greenhouse gas emissions.

20 The one that's about gas fields, the operation  
21 of gas fields and the correct standards that have to be  
22 used, certainly for -- if the gas we were talking about  
23 were coming from the U.S., which we've been given to  
24 understand that only 15 percent of it is, but if it were  
25 or for that 15 percent, then yes for the portion of it

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1 that is coming from new gas drilling, nothing that's  
2 currently existing, but only for new gas drilling, then  
3 those standards I believe require green completion which  
4 would dramatically lower leak rates.

5 So it's not for all of the gas, for a small  
6 percentage of it, and then from that percentage for a part  
7 of it that's a new part.

8 Q. And Ms. Hayden asked you a question regarding  
9 whether you prepared a life cycle greenhouse gas emissions  
10 analysis. Do you recall that?

11 A. She asked if I had done one for the natural  
12 gas sector or industry, yes.

13 Q. And you responded you did not?

14 A. I have not. No.

15 Q. And could you explain how that's different  
16 than the analysis that you did provide?

17 A. Yes. The analysis that I provided is really a  
18 very simple emissions analysis. It started out with Ms.  
19 Simollardes' spreadsheet. I adapted it. A couple more  
20 people have adapted it on top of mine, and it's a very  
21 simple spreadsheet that lays things out and adds and  
22 subtracts them based on assumptions about what possible  
23 leak rates might be.

24 Nobody that I know have -- or everything that  
25 I have seen submitted to this docket there hasn't been a  
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1 life cycle analysis of the actual natural gas that's being  
2 sourced to Vermont. A life cycle analysis would be  
3 actually going out and tracking the movement of that gas  
4 and learning everything that could be learned about it  
5 from the source of it all the way to its combustion, and  
6 that's not something that has occurred. So it would be  
7 actual measurement of leakage rates in this case from the  
8 very source of it all the way to its eventual combustion.

9 Q. And Ms. Hayden asked you a question about your  
10 comparing the use of natural gas to displace renewable  
11 energy. Do you recall that question?

12 A. I do.

13 Q. And can you explain I guess over the life of  
14 the project what would be your expectation of what the gas  
15 from the system would displace?

16 A. What the gas from the system --

17 Q. What the gas use from the system would  
18 displace?

19 A. I guess I'm confused by the whole thing here.  
20 So my understanding is that Vermont Gas is suggesting that  
21 the gas will displace fuel and propane home and I think  
22 some businesses heating use, direct use of fuel. So I'm  
23 not aware of anybody having done an analysis of it  
24 displacing renewables of any kind.

25 Q. Would you expect going out 50 to 100 years  
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1     there would be some displacement of renewable power?

2             A.       I honestly don't know.

3                     MS. LEVINE:   That's all I have.   Thank  
4                     you.

5                     CHAIRMAN VOLZ:   Thank you.   Dr. Stanton,  
6                     I think we're done.   You're excused.   Thank  
7                     you very much.

8                     MS. HAYDEN:   Except to get the cross  
9                     exhibits into the record.   I mean I can either  
10                    reduce the number of exhibits or I would move  
11                    all of them in.

12                    MS. LEVINE:   CLF had objections to many  
13                    of them so I would like to know --

14                    MS. HAYDEN:   Okay.   Exhibit 21, which is  
15                    a response from Dr. Stanton to Petitioner's  
16                    discovery 1-45.

17                    CHAIRMAN VOLZ:   Any objection to that?

18                    MS. LEVINE:   No.

19                    CHAIRMAN VOLZ:   Okay.   That one is  
20                    admitted.

21                    (Exhibit Petitioner Cross 21 was admitted  
22                    into the record.)

23                    MS. HAYDEN:   Exhibit 23 which is another  
24                    response to a discovery response by Dr.  
25                    Stanton.

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1 CHAIRMAN VOLZ: Any objection to that  
2 one?

3 MS. LEVINE: There were no questions  
4 about this in the cross examination.

5 MS. HAYDEN: Then I'll just ask the  
6 question.

7 CHAIRMAN VOLZ: Do you want to let that  
8 go in or do you want to have her ask the  
9 question now and get the answer now?

10 MS. LEVINE: I would like her to ask the  
11 question.

12 CHAIRMAN VOLZ: All right.

13 BY MS. HAYDEN:

14 Q. In your testimony you make some  
15 recommendations and speak to the Vermont Comprehensive  
16 Energy Plan, and the question that we asked you in  
17 discovery is did you speak to or inquire of any  
18 representative at the DPS regarding the Comprehensive  
19 Energy Plan or CEP and how this project will address  
20 Vermont's energy goals?

21 A. Yes.

22 Q. And do you recall your answer?

23 A. Yes. My answer is no I have not spoken to  
24 anybody in that Department.

25 Q. Thank you, and so I move the admission of  
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1 exhibit 23.

2 MS. LEVINE: Now I object because she's  
3 already asked the question.

4 MS. HAYDEN: That's fine.

5 CHAIRMAN VOLZ: I mean the whole  
6 practice of -- this whole practice I think if  
7 you want to have witnesses essentially confirm  
8 what they gave you in discovery and you want  
9 to use the discovery responses as an exhibits  
10 to do that, I think you need to talk to the  
11 attorney for the other side in advance, make  
12 sure they have no objection to doing it that  
13 way. If they do, then you have to ask the  
14 questions here because it's not necessarily  
15 appropriate practice to just bring in  
16 discovery responses unless there's a prior  
17 inconsistent statement unless using it for  
18 impeachment.

19 MS. HAYDEN: We provided these exhibits  
20 this morning and this is the first I have  
21 heard there are any objections and usually  
22 this comes up first thing in the morning. I  
23 do appreciate that Dr. Stanton didn't get here  
24 until just about noon, which is when we were  
25 breaking or after noon. So I don't know that  
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1 I had an opportunity to react to this until  
2 right now.

3 CHAIRMAN VOLZ: I'm not directing that  
4 just at you. I'm directing that to everybody  
5 as far as the practice goes. So I guess your  
6 understanding is that when you share these  
7 exhibits with people in advance you expect  
8 them to come tell you in advance whether they  
9 have objections?

10 MS. HAYDEN: Yes. That's been my  
11 experience.

12 MS. LEVINE: And my experience is they  
13 are providing to give a heads up as to what  
14 exhibits may be used during cross examination  
15 and you raise any objections during the cross  
16 examination which I am doing.

17 CHAIRMAN VOLZ: Right. So I would say  
18 if you haven't heard from the other side, you  
19 should go talk to them before. Not just  
20 assume that if you haven't heard everything is  
21 fine.

22 BOARD MEMBER BURKE: As it is I guess we  
23 have to proceed with how we're doing this so  
24 continue.

25 MS. HAYDEN: I'm trying to because I  
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1 know you want to get out of here early.

2 CHAIRMAN VOLZ: We just can't run over.  
3 It's not that we're trying to get out of here  
4 early. We want to have everybody have an  
5 opportunity to do what they need to do, but we  
6 do have to be done with this room.

7 BOARD MEMBER COEN: Our hearing room is  
8 available if we have to go late, Ms. Hayden.

9 MS. HAYDEN: Okay. I think I only have  
10 five more. Exhibit 24 which is a discovery  
11 response.

12 MS. LEVINE: This was already covered in  
13 your cross examination. I don't think it's  
14 necessary.

15 MS. HAYDEN: I didn't get into the how  
16 the -- it was calculated.

17 CHAIRMAN VOLZ: Why don't you just ask  
18 the question. It's just easier.

19 MS. HAYDEN: Well it's a very long  
20 answer. Forget it.

21 CHAIRMAN VOLZ: There was an objection  
22 to the answer as well.

23 MS. HAYDEN: I think that's fine. I  
24 won't offer that one.

25 CHAIRMAN VOLZ: Okay.

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MS. HAYDEN: The next exhibit is exhibit 27 which is the geophysical research of -- the document that was the report published by Geophysical Research Letters regarding the Utah study, and this is referenced and relied upon by Dr. Stanton in her prefiled testimony.

CHAIRMAN VOLZ: Any objection?

MS. LEVINE: No objection.

CHAIRMAN VOLZ: That one is admitted.

(Exhibit Petitioner Cross 27 was admitted into the record.)

MS. HAYDEN: The next document -- and I'm sorry. Did I say the exhibit number? That was exhibit 27.

MS. TIERNEY: You mean exhibit Petitioner's CLF Cross 27.

MS. HAYDEN: Yes. The next exhibit is exhibit Petitioner Cross CLF 28 which is the supplemental information that was posted on the web site provided the workpaper for the Utah study.

MS. LEVINE: There were no questions about this so there's -- my understanding there's been no foundation laid that would allow the admission.

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1 BY MS. HAYDEN:

2 Q. Did you read the supporting materials?

3 A. Can you direct me to the right thing to look  
4 at please?

5 Q. Yes.

6 CHAIRMAN VOLZ: CLF 28.

7 BY MS. HAYDEN:

8 Q. It's your rebuttal testimony. Yes. Your  
9 rebuttal testimony referred to the Utah study.

10 A. I thought you were going to direct me to the  
11 exhibit.

12 Q. First I want to tie it back to your testimony.

13 A. Sorry. I have a lot of pieces of paper here.  
14 I lost my rebuttal. Sorry. Here it is.

15 Q. Page 10.

16 A. Yes.

17 Q. You make the statement beginning on line 3 --  
18 I'm sorry, it's line 6, 4 through 6 you refer to a new  
19 study published in Geophysical Research Letters, and then  
20 state it's available at and you give -- I never know what  
21 these web letters are called -- a http site. Do you see  
22 that?

23 A. Yes.

24 Q. Did you read the research paper itself?

25 A. I did not.

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1 Q. Did you -- but you were aware of this web site  
2 because you referred to it in your testimony, correct?

3 A. Yes. I read the abstract which is what's at  
4 that web site.

5 Q. And do you agree with me that if you look at  
6 the bottom of exhibit CLF 28 --

7 A. Sorry. Where would I? Is that in the stack  
8 of stuff here? Okay.

9 Q. The bottom -- both of these documents came --  
10 you gave a web reference and exhibit 28 --

11 A. Exhibit 28.

12 CHAIRMAN VOLZ: At the bottom of the  
13 page there's a web address.

14 A. Yes.

15 Q. And so it's the same site?

16 A. No, it's not. It's not the same site.

17 Q. It's the same site --

18 BOARD MEMBER COEN: Let Ms. Hayden  
19 finish her statement please.

20 A. I'm sorry.

21 Q. Yours refers to abstract and this is  
22 supplemental information, correct?

23 A. They are two different url's. One is the url  
24 for the abstract and one is the url for the supplemental  
25 information.

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1 Q. But you would agree with me that the -- you  
2 recall for the supplemental information relates to the  
3 content of what's in the abstract?

4 A. Yes.

5 Q. Thank you. I would like to move in exhibit  
6 CLF 28.

7 CHAIRMAN VOLZ: Any objection?

8 MS. LEVINE: No.

9 CHAIRMAN VOLZ: Okay. It's admitted.

10 (Exhibit Petitioner Cross CLF 28 was  
11 admitted into the record.)

12 MS. HAYDEN: The last document I believe  
13 -- several more. The Office of Inspector  
14 General report, which is cited in your  
15 testimony, is exhibit CLF 33 and I would like  
16 to move that.

17 CHAIRMAN VOLZ: Any objection?

18 MS. LEVINE: Is this the report that  
19 you're citing to?

20 DR. STANTON: Yes.

21 CHAIRMAN VOLZ: Okay. That's admitted.

22 (Exhibit Petitioner Cross CLF 33 was  
23 admitted into the record.)

24 MS. HAYDEN: Nothing else.

25 CHAIRMAN VOLZ: Now you're excused.  
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1 Thank you.

2 DR. STANTON: Thank you.

3 CHAIRMAN VOLZ: Now we're ready for Dr.  
4 Erickson I believe -- Dr. Erickson. Excuse  
5 me.

6 BOARD MEMBER COEN: Dr. Erickson, do you  
7 want to raise your right-hand?

8 Jon Erickson,

9 Having been duly sworn, testified  
10 as follows:

11 BOARD MEMBER COEN: Would you state your  
12 name for the record.

13 DR. ERICKSON: Jon Erickson.

14 DIRECT EXAMINATION

15 BY MS. LEVINE:

16 Q. Good afternoon, Dr. Erickson.

17 A. Good afternoon.

18 Q. Do you have before you the prefiled testimony  
19 of Jon Erickson?

20 A. I do.

21 Q. And exhibit CLF JE 1?

22 A. I do.

23 Q. And were those prepared by you or under your  
24 supervision?

25 A. Yes, they were.  
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1           Q.       Do you have any corrections to make to your  
2 testimony?

3           A.       One small change. My testimony under the  
4 answer 10, I guess it's line 9, I stated that Vermont has  
5 temporarily banned within state borders. I'm striking  
6 temporarily because it's actually a straight-up ban.

7           Q.       With that correction is your testimony and  
8 exhibit true and accurate?

9           A.       It is.

10                   MS. LEVINE: I move the admission of Dr.  
11 Erickson's testimony and exhibit CLF JE 1.

12                   CHAIRMAN VOLZ: Any objection?

13                   MS. HAYDEN: No objection.

14                   CHAIRMAN VOLZ: Okay. It's admitted.

15                   (The Prefiled Testimony of Jon Erickson  
16 was admitted into the record.)

17                   (Exhibit CLF JE 1 was admitted into the  
18 record.)  
19  
20  
21  
22  
23  
24  
25

1 MS. LEVINE: Dr. Erickson is available  
2 for cross examination.

3 CHAIRMAN VOLZ: Ms. Hayden, do you have  
4 questions for this witness?

5 CROSS EXAMINATION

6 BY MS. HAYDEN:

7 Q. I have only one question and it relates to --  
8 and I assume you have been provided with the cross  
9 examination exhibits. I think I see in front of you -- we  
10 have only one cross examination exhibit which is your  
11 response 55 to Petitioner's discovery. Was this prepared  
12 by you?

13 A. It was.

14 Q. And is it true and accurate to the best of  
15 your information?

16 A. It is.

17 MS. HAYDEN: I have no further questions  
18 and I move the admission of exhibit Petitioner  
19 Cross CLF 35.

20 CHAIRMAN VOLZ: Any objection?

21 MS. LEVINE: Objection. There was no  
22 foundation laid to the admission of that  
23 exhibit. She can ask the question and he can  
24 provide an answer.

25 CHAIRMAN VOLZ: Right. Why don't you do  
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1                   that.

2       BY MS. HAYDEN:

3           Q.       Let's just ask the question. What is the  
4       basis for the statement at page 7 line 13 of your  
5       testimony concerning likelihood of customers converting to  
6       renewables for 35 years? Is it your testimony that  
7       customers in Addison County should continue burning oil  
8       now because people switch to renewables faster? If so,  
9       please explain the basis for this and produce all  
10      documents supporting this. Can you please read your  
11      answer?

12                   CHAIRMAN VOLZ: I think you need to have  
13      him give the answer. Then if he's  
14      inconsistent with that statement, then you can  
15      impeach him. That's the proper way to do  
16      this. Not just wholesale admit discovery  
17      responses.

18                   I realize it's more efficient to do it  
19      that way and we don't necessarily discourage  
20      it, but you need to work it out in advance if  
21      that's what you're going to do.

22                   MS. HAYDEN: Okay and we have used this  
23      process before.

24                   CHAIRMAN VOLZ: I know we have, but we  
25      have had concerns about it.

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1 MS. HAYDEN: Okay. This is the first  
2 time it's been expressed to me, and I would  
3 note that these were statements that were made  
4 under oath, but I have no problem with this if  
5 this witness --

6 CHAIRMAN VOLZ: Ask the question. Let  
7 him give his answer. Then you can use it.

8 BY MS. HAYDEN:

9 Q. Do you have the question in mind?

10 A. I do.

11 Q. Okay.

12 CHAIRMAN VOLZ: I will say I don't have  
13 a problem with this process because it is more  
14 efficient, and so while you technically can  
15 object and we have to go through this it's not  
16 helpful necessarily. I don't want you to get  
17 the wrong impression. Go ahead.

18 A. My testimony really doesn't recommend what  
19 customers in Addison County should do, and I've referred  
20 to the 35-year time frame because I'm referring to  
21 Vermont's Comprehensive Energy Plan which has a target of  
22 90 percent renewables by 2050.

23 Q. And it's also true that your testimony doesn't  
24 address the likelihood of customers converting?

25 A. It does not.  
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1 Q. Okay. And you haven't done any analysis in  
2 connection with the likelihood of customers converting to  
3 renewable energy?

4 A. I have not.

5 MS. HAYDEN: I have nothing further.

6 CHAIRMAN VOLZ: You're finished?

7 MS. HAYDEN: I had three questions and  
8 I'm done and the witness has answered.

9 CHAIRMAN VOLZ: Okay. Great. The other  
10 point I would make about this, Ms. Levine, is  
11 that this could also be construed as a party  
12 admission and therefore be admissible along  
13 that basis. We could have overruled your  
14 objection as well.

15 So this whole area I would like to be  
16 efficient, if possible. This was not  
17 efficient the way we just did it, although  
18 because you asked the question live and you  
19 got an answer, then you asked some followup  
20 questions which you wouldn't have gotten had  
21 you done it the other way. So all these  
22 things can be taken into consideration for the  
23 future and I would appreciate that.

24 BOARD MEMBER BURKE: Mr. Chairman, all  
25 due respect, as soon as we're out of here  
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1           today they are not going to be thinking about  
2           the future any more.

3                   CHAIRMAN VOLZ:   Probably not.   A lot of  
4           these parties appear here all the time,  
5           including these two.

6                   BOARD MEMBER BURKE:   Understood.

7                   CHAIRMAN VOLZ:   We're ready for Agency  
8           of Natural Resources.

9                   MS. DILLON:   No questions.   Thank you.

10                  CHAIRMAN VOLZ:   Thank you.

11                  MR. YOUNG:   Good afternoon, Dr.  
12           Erickson.   Your testimony talks about looking  
13           at the effect of the pipeline on long term  
14           greenhouse gas emissions.   What do you  
15           consider long term when you say that?

16                  DR. ERICKSON:   Well when I look at the  
17           Vermont commitments to greenhouse gas  
18           reductions the State of Vermont goes out to  
19           2050.   So most of my -- my testimony is  
20           referring to a time period up to the year  
21           2050.

22                  MR. YOUNG:   Just -- we have heard  
23           different time periods.   Some people say 20.  
24           Some people say 100.   Just trying to figure  
25           out what you're thinking.

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1                   BOARD MEMBER BURKE: Could I just a  
2                   second, Mr. Young? So, Dr. Erickson, you took  
3                   a look and said this plan has 90 percent in  
4                   2050. You just did the math and that's where  
5                   you came up with the 35 years. Is that  
6                   basically how you did it?

7                   MR. ERICKSON: That's correct.

8                   BOARD MEMBER BURKE: That's refreshing  
9                   somebody did it that way. Thank you.

10                  MR. YOUNG: In the last paragraph of  
11                  your testimony you talk about weighing the  
12                  addition of natural gas against a shift  
13                  directly to renewables or increased use of  
14                  renewables such as increased use of biomass  
15                  for heat, correct?

16                  DR. ERICKSON: Yes.

17                  MR. YOUNG: My question is sort of a  
18                  practical one. How are you assuming that  
19                  that's going to -- what is it that we're  
20                  supposed to order that's going to produce that  
21                  since we may not have the ability to order say  
22                  the installation of district heating in a  
23                  particular location?

24                  DR. ERICKSON: So any of these choices  
25                  over energy types require significant upfront  
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1 capital expenditures and infrastructure. So  
2 my basis for this is just to look at what  
3 choices we're making today will influence our  
4 energy path for many years to come.

5 MR. YOUNG: I guess what I'm trying to  
6 get at is the following. If we can't order  
7 the alternatives that you're proposing or have  
8 limited jurisdiction to order the  
9 alternatives, you're basically asking us to  
10 reject this pipeline in favor of alternatives  
11 that we have no basis for assuring are going  
12 to occur. Is that what you're positing?

13 DR. ERICKSON: So I'm basing that on  
14 Vermont's greenhouse gas reduction goals and  
15 Vermont's Comprehensive Energy Plan and my  
16 opinion that investment in infrastructure that  
17 is antithetical to those two goals today in  
18 the year 2013 doesn't give us time to move  
19 away from there.

20 MR. YOUNG: Okay. That's it. Thank you  
21 very much.

22 BOARD MEMBER BURKE: Dr. Erickson, not  
23 every market is the same and some markets  
24 probably differ on take rates and what is  
25 important to the buyers in those marketplaces,

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1 is that true?

2 DR. ERICKSON: Yes.

3 BOARD MEMBER BURKE: Are you familiar  
4 with what's now GMP but was at the time of its  
5 inception the Cow Power program that Central  
6 Vermont Public Service had? Do you understand  
7 that program at all?

8 DR. ERICKSON: I do not.

9 BOARD MEMBER BURKE: If I told you that  
10 program allows for customers to chose  
11 purchasing power that was produced through  
12 methane digesters --

13 DR. ERICKSON: I'm sorry. You said Cow  
14 Power? I am familiar with that.

15 BOARD MEMBER BURKE: That's a choice  
16 that comes with a premium. Are you aware  
17 there's a fairly substantial take rate for  
18 that power in Vermont now?

19 DR. ERICKSON: For choosing Cow Power?

20 BOARD MEMBER BURKE: Yes.

21 DR. ERICKSON: I wouldn't characterize  
22 it as substantial, but yeah there is a take  
23 rate.

24 BOARD MEMBER BURKE: And does that  
25 indicate to you that Vermonters are aware and  
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1 open to the use of renewable resources in  
2 their portfolio for their own expenditure on  
3 their energy costs?

4 DR. ERICKSON: That provides an option,  
5 a voluntary option.

6 BOARD MEMBER BURKE: Thank you.

7 CHAIRMAN VOLZ: Any followup to our  
8 questions? Any redirect?

9 MS. LEVINE: Yes. One question.

10 REDIRECT EXAMINATION

11 BY MS. LEVINE:

12 Q. Do you have in mind the questions Mr. Burke  
13 just asked you regarding the Cow Power program?

14 A. Yes.

15 Q. Do you know the volume in terms of  
16 megawatthours or kilowatthours that Cow Power program  
17 produces?

18 A. I do not know that off the top of my head.

19 Q. And have you done any evaluation as to the  
20 sufficiency of the use of Cow Power to meet clean energy  
21 goals outlined in the Comprehensive Energy Plan?

22 A. I have not.

23 Q. Is it a program of sufficient magnitude to  
24 meet those goals?

25 A. In my opinion no. I mean I understand the  
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1 full portfolio of Vermont's energy supply and demand, and  
2 Cow Power is -- not knowing the number off the top of my  
3 head is a very small percentage.

4 MS. LEVINE: That's all I have. Thank  
5 you.

6 CHAIRMAN VOLZ: Thank you. Dr.  
7 Erickson, you're excused. Thank you.

8 DR. ERICKSON: Thank you.

9 CHAIRMAN VOLZ: I think we're ready for  
10 Mr. Dunn.

11 BOARD MEMBER COEN: Mr. Dunn, do you  
12 want to raise your right-hand?

13 Thomas Dunn,

14 Having been duly sworn, testified  
15 as follows:

16 BOARD MEMBER COEN: State your name for  
17 the record.

18 MR. DUNN: Thomas Dunn.

19 CHAIRMAN VOLZ: Mr. Sciarrotta, you had  
20 some introductory questions you wanted to ask  
21 Mr. Dunn?

22 MR. SCIARROTTA: Yes, I do. Just a few  
23 minutes.

24 DIRECT EXAMINATION

25 BY MR. SCIARROTTA:  
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1           Q.       Mr. Dunn, could you tell the Board your  
2       current occupation and what the duties of that occupation  
3       are please?

4           A.       Yes. I am the Chief Operating Officer at  
5       Vermont Electric Power Company. I have responsibilities  
6       in construction, system operations, planning, engineering,  
7       environmental permitting, asset maintenance.

8           Q.       Right-of-way fall under your auspices?

9           A.       Yes, it does.

10          Q.       And can you describe to the Board your  
11       experience in electric transmission planning and  
12       construction since you have been at VELCO?

13          A.       Yes. I was -- in one of my earlier positions  
14       was a project manager for the Northwest Reliability  
15       Project. That was a project that had about 60 miles of  
16       transmission line construction and over 10 substations. I  
17       have had responsibilities, managerial responsibilities,  
18       during the Southern Loop which was a 50-mile 345 line  
19       including three new substations, and a variety during my  
20       tenure at VELCO. I have been responsible for managing the  
21       oversight of a variety of transmission substations,  
22       constructing them.

23          Q.       And are you also familiar with how the  
24       electric transmission system is planned and the various  
25       factors that go into that and the time horizons for that  
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1 plant?

2 A. Yes I am in terms of scheduling the work,  
3 what's required in some instances in terms of transmission  
4 line construction, scheduling outages, what's actually  
5 involved in the physical work. I'm familiar with those  
6 aspects as well.

7 Q. And how about transmission planning itself in  
8 terms of the time horizons for the regional system plan,  
9 for example?

10 A. Yes. The transmission planners report to me.  
11 I'm familiar with the work that they do and conversant in  
12 some of the factors that have influenced the transmission  
13 plan, and I am familiar with the 2012 version of the long  
14 term transmission plan.

15 Q. Okay. And you're aware that in this case  
16 there are some issues concerning VELCO's intention to use  
17 parts of its rights-of-way that have not yet been  
18 developed in terms of some future electric transmission  
19 projects in the corridor?

20 A. Yes. I understand that the question has come  
21 up about whether, you know, what are the plans for a  
22 second transmission line in this corridor.

23 Q. Okay. Can you explain to the Board why it's  
24 reasonable to assume in this docket at some point in the  
25 future there is likely to be a second electric

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1 transmission line built in the VELCO corridor?

2 A. Yes. From a system reliability perspective  
3 the 20-year plan does not have -- does not call for any  
4 transmission line construction in this corridor. That's  
5 based on lots of inputs. Primarily a load forecast that  
6 is lower than it was two or three years ago.

7 The net effect of that is that projects that  
8 we were looking at in this corridor are no longer needed  
9 in the 20-year horizon. So having said that, though, what  
10 I think is the potential for second line power, the  
11 biggest thing now is looking at the likelihood of bringing  
12 in additional renewable power from Hydro-Quebec, New York.  
13 Vermont's position at a crossroads between those two  
14 jurisdictions makes it a very logical place to look if  
15 you're looking to bring in additional hydro power or other  
16 renewables; wind in northeast New York, for example. I  
17 understand this is something that is being looked at not  
18 only by transmission developers, but also by the New  
19 England Governors are considering ways to bring in  
20 additional green resources into the region, and depending  
21 on the size of the import, if it's -- and if it's 40  
22 megawatts or larger, it is certainly conceivable that a  
23 transmission -- in order to facilitate that delivery into  
24 Vermont and across Vermont you would have to upgrade the  
25 line from the Burlington area down to the New Haven  
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1     substation.

2             Q.       Okay.

3                     BOARD MEMBER COEN:   Can I just ask a  
4                     clarification question?

5                     MR. SCIARROTTA:   Sure.

6                     BOARD MEMBER COEN:   Is there also a  
7                     possibility of the need -- because of the  
8                     projected closure of Vermont Yankee in terms  
9                     of the need to bring power from somewhere  
10                    else?

11                    MR. DUNN:   I think the closure of  
12                    Vermont Yankee will not have any effect on the  
13                    need for transmission needs in this corridor.  
14                    There's no effect.

15                    BOARD MEMBER COEN:   Thank you.

16     BY MR. SCIARROTTA:

17             Q.       Are there other factors like the anticipation  
18             of the electric vehicles or other factors like that you  
19             might want to bring to the Board's attention?

20             A.       Well as I said the load forecasts that we're  
21             operating under now are lower than they were three years  
22             ago.   There are a variety of factors; energy efficiency,  
23             the deployment of distributed resources, collectively I  
24             think are having an impact in terms of depressing demand.

25                     Certainly there are potential futures where  
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1 electric vehicles or the electrification of some of the  
2 parts of society, for example, electric sourced heat  
3 pumps, if they became something that were used in a  
4 widespread basis, then I would expect to see the effects  
5 of that show up in our load forecast, and I would say that  
6 would, if they were widespread and the load were  
7 meaningful, I wouldn't be surprised that would in turn  
8 affect the needs in terms of reliability on the  
9 transmission system.

10 Q. And you're aware in this docket in this  
11 proceeding over the last week there's been some discussion  
12 about the siting of the Vermont Gas project in the Rotax  
13 Road area?

14 A. Yes, I am.

15 Q. And are you familiar with the plans originally  
16 proposed by Vermont Gas with respect to siting the  
17 pipeline, the pipeline into the VELCO corridor or adjacent  
18 to the VELCO corridor in that area?

19 A. Yes. I believe that's the December 2012  
20 routing?

21 Q. That's correct.

22 A. Yes.

23 Q. If the Board were to approve the siting of the  
24 project as proposed in the December 2012 alignment, what  
25 are the likely impacts to VELCO with respect to a future  
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1 electric transmission line construction in that area?

2       A.       Well I would -- I guess I would characterize  
3 them as potential impacts and -- but in the future if that  
4 gas pipeline were in that location and we had to build a  
5 second line for the purposes of this discussion, say it's  
6 a 345 kV line, the concerns that I would have particularly  
7 would be in terms of setting the structures and doing the  
8 excavation. In some instances I think it would be fairly  
9 close to the gas pipeline. We would have heavy equipment  
10 out in the field doing this work.

11               Again there's a lot of factors that would  
12 affect the impacts, potential impacts. For example, if  
13 the angle structures were our traditional wood structures,  
14 those are guyed with guys that extend about 70 to 80 feet  
15 from the base of the pole. So there's a fairly large  
16 impact involved in setting those structures.

17               If instead of using wood structures we were to  
18 use self-supporting steel, we would be looking at building  
19 foundations that in some instances, depending on the soil  
20 conditions, can go down to 50 feet, and these are  
21 installed with basically an excavator with a large  
22 drilling rig drilling a 7 or 8 foot diameter shaft into  
23 the ground, and then with concrete trucks coming out to  
24 the site. The presence of a gas pipeline in those  
25 circumstances would complicate the work. Clearly whatever

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1 design would have to be done in a way that, you know, we  
2 would not disturb that pipeline.

3 That would be the side on our construction,  
4 and then the other thing that I would be concerned about  
5 is if Vermont Gas had to work on their pipeline and it was  
6 in close proximity to just the existing line, one of the  
7 things that we're concerned about is that in order to meet  
8 safety clearances, if Vermont Gas, for example, had to get  
9 out there with an excavator, is having an excavator near  
10 our transmission lines, we would most likely have to take  
11 those transmission lines out of service. In some  
12 instances that's not a big deal. In other instances  
13 taking the line out of service could compromise the  
14 reliability of the grid.

15 It really is a situation specific type of  
16 thing, but I think that as we looked at and talked with  
17 Vermont Gas in terms of being near our lines our  
18 preference has always been that the gas pipeline is  
19 placed, if it's in our corridor, in a place that we don't  
20 have to -- we won't affect them during our maintenance  
21 operations and any future construction, and likewise their  
22 construction activities won't affect us or will be  
23 minimized.

24 Q. If VELCO indeed had to switch from its  
25 standard wood and pole structures to steel poles, would  
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1     there be a height increase, aesthetic impact associated  
2     with those poles and a cost impact associated with that  
3     kind of work?

4           A.       I don't think there would be a height increase  
5     necessarily. I think rather it is more expensive to build  
6     with self-supporting steel structures. Offhand I don't  
7     know what kind of additional cost that would be.

8                   CHAIRMAN VOLZ: The need for self-  
9                   supporting steel structures is because if the  
10                   gas -- in certain locations if the gas  
11                   pipeline were in your right-of-way, you  
12                   wouldn't be able to use guy wires because the  
13                   pipeline might be interfering with the  
14                   placement of those. Is that the problem?

15                   MR. DUNN: That's the concern, that's  
16                   correct. Because the wooden angle structures  
17                   have a dozen or more guys, and to the extent  
18                   that the gas pipeline, you know, prevented  
19                   that from using those, then we would go to the  
20                   self-supporting steel and it would be three  
21                   steel poles, foundations for each of the three  
22                   steel poles with no guy wires.

23                   CHAIRMAN VOLZ: Okay. Thank you. Is  
24                   that like a H-frame structure or the kind of  
25                   steel poles you used in the Lamoille line?  
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1                   MR. DUNN: Well the steel poles  
2                   themselves would be like what you have seen on  
3                   Lamoille. I think on the East Avenue project  
4                   where we put two 115 lines in the 150-foot  
5                   corridor we used steel poles in order to avoid  
6                   having the guy wires extend outside of the  
7                   corridor.

8                   BOARD MEMBER COEN: Same thing in the  
9                   South Burlington along the 115 going down from  
10                  that substation?

11                 MR. DUNN: Yes.

12                 CHAIRMAN VOLZ: I just wanted to have a  
13                 visual idea what you are talking about.

14                 MR. DUNN: They are 7 or 8 feet at their  
15                 base and they use corten steel which is that  
16                 rusty colored steel.

17                 CHAIRMAN VOLZ: Thank you.

18                 MR. SCIARROTTA: Did you have a  
19                 followup?

20                 CHAIRMAN VOLZ: No, I'm all set.

21 BY MR. SCIARROTTA:

22                 Q.       If there were additional costs to VELCO for  
23                 this second buildout that were occasioned solely by the  
24                 presence of the gas pipeline sited in the middle of the  
25                 VELCO right-of-way, who should bear those costs and why?  
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1           A.       I think that would be a cost that we would  
2 look for Vermont Gas to pay for.

3           Q.       And why would VELCO not assume, for example,  
4 the cost?

5           A.       Well I think that today it's an electric  
6 transmission corridor. We have the additional  
7 right-of-way to accommodate a second line. The presence  
8 of a Vermont Gas line that would compromise our ability to  
9 put that line in as we would normally have done it, if it  
10 results in additional incremental costs I think those are  
11 costs that are -- that would be as a result of Vermont  
12 Gas's presence in the corridor. So I would say they would  
13 be the party that should be responsible for those  
14 incremental costs.

15          Q.       And that electric transmission corridor was  
16 paid for -- is it fair to say paid for with electric  
17 ratepayer dollars?

18          A.       That's correct.

19          Q.       If the Board were to approve the siting of the  
20 project as submitted by Vermont Gas and its alignment from  
21 December 2012, are there any conditions you would suggest  
22 the Board should impose to protect VELCO and the electric  
23 ratepayers?

24          A.       Well I think that the one we just talked  
25 about, which is that I would ask that the Board condition  
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1 the approval on Vermont Gas agreeing to pay the  
2 incremental cost -- VELCO's incremental cost of having to  
3 do either special construction techniques or use, for  
4 example, moving from a wood angle structure to a  
5 self-supporting steel structure, those costs should be  
6 paid for by Vermont Gas.

7 I think also that -- and we have had a very  
8 good relationship -- working relationship with Vermont  
9 Gas, but I would ask that the Board make a condition that  
10 Vermont Gas would work with VELCO in developing the design  
11 of such a configuration.

12 MR. SCIARROTTA: I have no further  
13 questions of the witness.

14 CHAIRMAN VOLZ: Thank you.

15 BOARD MEMBER COEN: Good afternoon, Mr.  
16 Dunn.

17 MR. DUNN: Good afternoon, Mr. Coen.

18 BOARD MEMBER COEN: We have had a lot of  
19 testimony in this docket regarding VELCO's  
20 preferences in terms of how the gas pipeline  
21 might impact the right-of-way, and what my  
22 questions would be directed to is not  
23 preferences but what is possible. Okay.

24 So what we have heard is that the  
25 preference is for the pipeline to be, if it's  
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1           going to go into the VELCO right-of-way, to go  
2           in on the west side and no more than 10 feet.  
3           How far could it go in or how far from the  
4           structures is possible?

5           CHAIRMAN VOLZ: From the existing  
6           structures.

7           MR. DUNN: On the existing structures.

8           CHAIRMAN VOLZ: Which already have guy  
9           wires in place presumably.

10          MR. DUNN: Well when I think of the  
11          structure it's not just the poles it would be  
12          the anchors for the guys.

13          BOARD MEMBER COEN: I understand.

14          MR. DUNN: Quite frankly that's a  
15          difficult question for me to answer only  
16          because, you know, I think that could you get  
17          inside the 50 feet and still do the  
18          construction? The answer is yes I think so.

19          One of the things that would be of  
20          concern in that circumstance would be the  
21          closer you get to the transmission line the  
22          higher the likelihood is that you're having to  
23          take that transmission line out of service for  
24          the duration of the construction or during the  
25          periods when the construction is underway.

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1                   There's, you know, I honestly don't  
2                   know, you know, is it 25 feet or is it 30 feet  
3                   or 40 feet. I think it would be a  
4                   determination by the engineers to look at the  
5                   clearance requirements and whether there are  
6                   other interactions with the transmission line.  
7                   I can't think of any at this point, but we  
8                   would be looking at, you know, making sure  
9                   obviously that none of the structures would be  
10                  undermined, and again it may be a soil  
11                  condition question. In some instances the  
12                  soils wouldn't be affected if the trenching  
13                  were near the structures, while in other  
14                  instances the soil conditions might be such  
15                  that trenching within 15 feet could compromise  
16                  the integrity of the underlying soil and the  
17                  structure itself.

18                 BOARD MEMBER COEN: Okay. So it's on a  
19                 case-by-case basis, but certainly it could be  
20                 more than 10 feet?

21                 MR. DUNN: Inside the corridor?

22                 BOARD MEMBER COEN: Yes.

23                 MR. DUNN: Is it possible? Yes, I think  
24                 it is, but not desirable.

25                 BOARD MEMBER COEN: I understand your  
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1 desires.

2 MR. DUNN: And again I offer that up as  
3 someone that, you know, again is looking at  
4 the operation of the transmission system, and  
5 what's in my mind is -- are things like  
6 reliability, clearly safety, the  
7 maintainability for both our lines as well as  
8 for Vermont Gas, and I think that's where the  
9 big part of where the 50 feet has come from is  
10 trying to make sure we can do what we need to  
11 without affecting Vermont Gas, and likewise  
12 they can do what they will need to do in the  
13 future, and that when you get inside of that  
14 50 feet you're compromising those things.

15 BOARD MEMBER COEN: So the 10 feet in at  
16 this point is 50 feet from the structure? Is  
17 that what you're telling me or is it 65 feet  
18 from the structure?

19 MR. DUNN: I would have to look. I  
20 think it's probably more than -- it's probably  
21 more than 50 feet from the structure.

22 BOARD MEMBER COEN: So is your --

23 MR. DUNN: Except on the angles it's  
24 going to be different because then we have guy  
25 wires.

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1                   BOARD MEMBER COEN: I understand that,  
2                   but I'm just trying to get a sense of what is  
3                   possible, what makes sense. Is it 50 feet  
4                   from the structure to maintain the reliability  
5                   and safety and the other apple pie and  
6                   motherhood and other concerns you have?

7                   MR. DUNN: Yes. 50 feet, yes.

8                   BOARD MEMBER COEN: And anything inside  
9                   50 feet --

10                  MR. DUNN: We begin to compromise some  
11                  of those values.

12                  BOARD MEMBER COEN: Would the same be  
13                  true on the east side where you obviously do  
14                  not have -- your preference is less or your  
15                  desire is less to have it on the east side of  
16                  the corridor; is that correct?

17                  MR. DUNN: That's correct, and again on  
18                  the east side what would come into play is the  
19                  space for a potential future line, and that is  
20                  why, you know, I think what we're looking at  
21                  in terms of a corridor for a future line in  
22                  that area would be 250 feet, and so outside,  
23                  you know, either 10 feet inside the 250-foot  
24                  eastern edge or outside of that altogether  
25                  where we have the additional right-of-way.

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1                   BOARD MEMBER COEN: So on the east side  
2                   you would limit it even more from your  
3                   perspective to give --

4                   MR. DUNN: To maintain the ability to  
5                   put in a second line and --

6                   BOARD MEMBER COEN: Right, and  
7                   particularly if the second line was a 345  
8                   rather than a 115?

9                   MR. DUNN: That's correct, and the  
10                  dimensions that I have in mind are those that  
11                  we used on the 345 line from New Haven down to  
12                  West Rutland as well as the line from Coolidge  
13                  to Vernon.

14                  BOARD MEMBER COEN: Now that brings up  
15                  the next question. The line going down from  
16                  New Haven to Rutland, West Rutland, you have  
17                  basically parallel 115 and 345 for some period  
18                  of that corridor; is that correct?

19                  MR. DUNN: It's for the entire distance.

20                  BOARD MEMBER COEN: And so what about  
21                  the space between those two lines, is there an  
22                  opportunity to put a line -- a gas line in  
23                  there and maintain the kind of safety and  
24                  reliability issues that you're concerned  
25                  about? You have to space though anyway for

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1 other reasons, right?

2 MR. DUNN: That's correct, but of course  
3 the concern there is now you have two lines  
4 that are potentially affected and you have the  
5 phase conductors quite a bit closer than what  
6 the centerline's spacing is. The structures  
7 have a certain width. They have crossarms.  
8 So you have the 345 arm extending over towards  
9 the 115 line. I think that would be a really  
10 bad place to put a gas pipeline.

11 BOARD MEMBER COEN: Okay. Thank you.

12 CHAIRMAN VOLZ: And just going back to  
13 the Rotax Road area, if you go over the other  
14 concern concerning the questions Mr. Coen was  
15 just asking you about the east side of that  
16 right-of-way, because there's no line there  
17 today but you might want to construct one,  
18 part of the problem with putting it on that  
19 side is it goes beyond just maintenance and  
20 interference with each other's activities.  
21 It's that if there's a gas pipeline on that  
22 side, it makes it much more difficult to  
23 actually construct a new line somewhere if  
24 it's on the west side the line is already  
25 constructed.

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1 MR. DUNN: That's correct.

2 CHAIRMAN VOLZ: Okay. I just wanted to  
3 make sure I understood that. Thank you.

4 BOARD MEMBER BURKE: Mr. Dunn, how are  
5 you?

6 MR. DUNN: I'm well, Mr. Burke. How are  
7 you?

8 BOARD MEMBER BURKE: It was interesting  
9 to have you on the stand and talk about siting  
10 after the eight years Mr. Coen and I put in  
11 with you and the NRP, and it was interesting  
12 to hear you reference trying to read your mind  
13 to Mr. Coen because we did that on several  
14 occasions on the way up that journey. But let  
15 me ask you one of the things that oftentimes  
16 we're trying to get a grasp on there and that  
17 I think this Board is trying to get a grasp on  
18 here.

19 I understand difficulty. I understand  
20 all of that. I didn't hear any direct  
21 references to real concerns about safety. One  
22 oblique one to lines being out of service, but  
23 I'm talking about just real safety issues when  
24 you have a gas pipeline located in the  
25 relatively near vicinity to a high voltage

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1 transmission line. Do you have any concerns  
2 there? And if you do, can you outline those  
3 to us and tell us what they might be?

4 MR. DUNN: Well I think the concerns  
5 that I have during construction, to the extent  
6 that there are pieces of heavy equipment  
7 involved in building the gas transmission line  
8 would be the proximity of energized electric  
9 transmission lines.

10 My expectation would be in places where  
11 they are close to our corridor that we would  
12 be looking at outages during those times.  
13 Operations and maintenance wise the concern is  
14 if we have to replace a structure, you know,  
15 we want to make sure that the gas transmission  
16 line is installed in such a way that we can  
17 access our corridors. I think that's a  
18 manageable -- that's something that we  
19 anticipate will not be an issue. That is it  
20 will be taken into account in terms of the  
21 design.

22 I think the -- there's another safety  
23 issue and it's a little bit more nebulous, and  
24 to the extent that having to take transmission  
25 lines out of service always involves some

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1           compromise in terms of the performance of the  
2           electric grid and typically, you know, we  
3           would not allow that. We would not be doing  
4           those outages. We would study the requested  
5           outage and not go forward with those outages  
6           in instances where the grid reliability was  
7           compromised in an unacceptable way. I guess  
8           if there were an emergency type situation and  
9           we had to take the line out of service, you  
10          know, that could be a circumstance where, you  
11          know, maybe the grid reliability would be  
12          affected, but, you know, that's hypothetical,  
13          but it is something to take into account.

14                 BOARD MEMBER BURKE: You have a  
15                 pressurized gas transmission line. You have  
16                 high voltage lines. You have the potential  
17                 for arcing. You have natural disasters and  
18                 we've certainly seen our shares of those  
19                 recently.

20                 Should those trouble us at all with  
21                 everything in the same corridor? Should we be  
22                 thinking about that or are there enough  
23                 safeguards in place that you're satisfied that  
24                 in fact those are acceptable risks?

25                 MR. DUNN: I think that they are  
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1           acceptable risks. I think that the -- in  
2           terms of that the gas pipeline will be  
3           constructed -- designed and constructed  
4           properly and that it will be maintained  
5           properly. That's been the experience I  
6           believe here in Vermont with Vermont Gas and I  
7           would expect that to go forward, and that in  
8           terms of interactions between the gas  
9           transmission system and the electric  
10          transmission system there are technical issues  
11          that have to be resolved in terms of the  
12          cathodic protection. I think those will be  
13          resolved as well. So I think I would agree  
14          that they are acceptable risks based on what I  
15          know.

16                   BOARD MEMBER BURKE: Thank you, Mr.  
17           Dunn.

18                   MR. DUNN: You're welcome.

19                   MR. YOUNG: Good afternoon, Mr. Dunn. A  
20           few questions. First when you were talking  
21           about the possible need to put in steel  
22           structures as opposed to wood structures  
23           you're just talking at the angles there as you  
24           expressed that; is that correct?

25                   MR. DUNN: That's correct. The  
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1 structures in line, what's called tangent  
2 structures, typically unguyed.

3 MR. YOUNG: And so for the area we're  
4 talking about we're talking two structures  
5 that might need to be -- might need to be  
6 steel instead of guyed wood H frames.

7 MR. DUNN: That's potential, right, and  
8 what I don't know is whether the existing  
9 guyed structures would be affected by the  
10 design as well.

11 MR. YOUNG: This issue of co-locating  
12 natural gas pipelines either in electric  
13 right-of-ways or adjacent to them may be  
14 something new to us, but I take it it's not  
15 really a new issue in this country, is it?

16 MR. DUNN: No, it's not. My  
17 understanding is that it's relatively common  
18 in other parts of the country.

19 MR. YOUNG: And you've expressed  
20 concerns about distances. Are the distances  
21 that you're talking about, say the minimum 50  
22 foot, is that something that is a commonly  
23 accepted practice elsewhere or are there  
24 instances -- in other places does it get  
25 closer? Do you know?

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1           MR. DUNN: I don't know. I've only been  
2           tangentially involved in the specifics of  
3           that. I think there are 50 foot -- requests  
4           for 50 feet of separation is fairly consistent  
5           and reasonable from some of the information  
6           that I have seen, and I've seen in other  
7           instances where utilities try to keep the gas  
8           pipeline completely outside the corridor, but  
9           I think what we're asking for is in my view  
10          seems to be reasonable, but beyond being able  
11          to say this is how it's done in New York or  
12          California I just don't have that knowledge.

13          MR. YOUNG: And you probably won't be  
14          able to answer this one either, but I'll try  
15          it. Do you know whether in those types of  
16          co-location or close proximity siting that  
17          whenever work is being done on the natural gas  
18          pipeline it's necessary to take the  
19          transmission line out of service or whether  
20          that's good utility practice?

21          MR. DUNN: It will be a function of how  
22          close, you know, how close they are going to  
23          be. You know we have this experience  
24          sometimes when we're doing vegetative  
25          management. We do things like take what's

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1           called reclosing off of the circuit where  
2           basically if there were an event the circuit  
3           would immediately trip offline, but you know  
4           we make the call. If we think that the safety  
5           distances are not acceptable, then we take the  
6           line out of service.

7           MR. YOUNG: And the final area is in  
8           response to a question from Mr. Coen about  
9           siting it up the middle of the corridor. I  
10          think your response was a very quick that's a  
11          very bad idea. Is that true even if you can  
12          have at least 50 feet between the centerline  
13          of the transmission line and the pipeline on  
14          both sides?

15          MR. DUNN: Yes. It doesn't change. I'm  
16          trying to think in my mind what the cross  
17          section looks like, but being in the middle of  
18          that doesn't mean you're 50 feet away from  
19          the phase conductors, and if you have to get  
20          in there with any kind of equipment,  
21          excavators or backhoes, it would not be a good  
22          situation.

23          MR. YOUNG: Conceivably you would need  
24          to take both transmission lines out of  
25          service?

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1 MR. DUNN: Potentially.

2 MR. YOUNG: That's it. Thank you very  
3 much.

4 MR. DUDLEY: Mr. Dunn, just to clarify,  
5 assuming the second transmission line were put  
6 in what's the minimum distance between two  
7 lines? What would that be?

8 MR. DUNN: I think we would be looking  
9 at approximately -- between a 115 line I think  
10 that's on the order of 75 feet.

11 MR. DUDLEY: For --

12 MR. DUNN: Centerline to centerline I  
13 believe subject to check on that. I would  
14 like to --

15 BOARD MEMBER BURKE: We would make that  
16 a data request, Mr. Dunn, and if you could  
17 give that to us, we would appreciate it.

18 MR. DUNN: Certainly.

19 BOARD MEMBER COEN: Make it for both a  
20 345 and 115 on the second line.

21 CHAIRMAN VOLZ: If the distances are  
22 different, we would want to have it.

23 MR. DUNN: I'm sorry. Between a 115  
24 line and the 115 line, and a 115 line and a  
25 345 line?

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1 CHAIRMAN VOLZ: Yes.

2 BOARD MEMBER BURKE: Any followup to our  
3 questioning before we go to redirect? Yes,  
4 Mr. Diamond.

5 EXAMINATION

6 BY MR. DIAMOND:

7 Q. Good afternoon, Mr. Dunn.

8 A. Good afternoon.

9 Q. You testified earlier about trying to address  
10 acceptable risks by co-locating a gas transmission line  
11 and high voltage electric transmission line. Do you  
12 recall that?

13 A. Yes.

14 Q. Would one potential risk that you would want  
15 to attempt to mitigate would be a situation where there  
16 was a gas leak and an arc that could set off a potential  
17 explosion. Is that a potential risk that you would want  
18 to mitigate against?

19 A. Certainly be concerned about it.

20 Q. And take measures to mitigate against that  
21 potential concern?

22 A. I think -- yes.

23 Q. And could one way to mitigate against such a  
24 risk would be to ensure that there were sufficient  
25 setbacks between the infrastructure that could create that  
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1 risk and those who could be harmed both individually and  
2 their property?

3 A. I think putting distance between the electric  
4 line and the gas line is effective. Certainly having  
5 distance between the gas line and property makes sense to  
6 me.

7 Q. And persons as well?

8 A. Yes.

9 MR. DIAMOND: No further questions.

10 CHAIRMAN VOLZ: Thank you. Yes.

11 MS. LEVINE: I have a couple of followup  
12 questions from your questions.

13 CHAIRMAN VOLZ: Sure.

14 EXAMINATION

15 BY MS. LEVINE:

16 Q. The Board asked you a few questions -- good  
17 afternoon, Mr. Dunn. I'm Sandra Levine.

18 A. Good afternoon.

19 Q. The Board asked you some questions concerning  
20 the minimum distance or the distances for if you needed to  
21 add another transmission line. Do you have those in mind?

22 A. Yes.

23 Q. And do you anticipate needing to do that over  
24 the next 20 years?

25 A. My view is that it's a high likelihood that  
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1     there will be interest in an additional import from either  
2     New York or from Hydro-Quebec, but in terms of its size  
3     that's a little more -- even more speculative I guess.  
4     Both are somewhat speculative. Because I mentioned if  
5     it's above 400 megawatts I would anticipate that a line to  
6     New Haven would probably be required in that circumstance  
7     if it came in through either Plattsburgh and into Grand  
8     Isle or from Hydro-Quebec in through the Highgate area.

9           Q.       And those are alternatives that are being  
10    considered as part of the Vermont System Planning  
11    Committee?

12          A.       No. I don't think so. Those are not  
13    reliability projects. Those would be projects to be  
14    determined, but would be proposed as perhaps public policy  
15    projects as contemplated under Order 1000.

16                   CHAIRMAN VOLZ: Which refers to Federal  
17                   Energy Regulatory Commission Order 1000.

18                   MR. DUNN: Yes. That's correct.

19                   CHAIRMAN VOLZ: Thank you.

20                   MS. LEVINE: Thank you.

21                   CHAIRMAN VOLZ: Any redirect? I'm sorry

22                   Mr. Palmer.

23    BY MR. PALMER:

24          Q.       The safety concerns that you have here in this  
25    area these are the same safety concerns you have on the  
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1 other 23 miles of line that are parallel with your  
2 corridor that will be co-existing?

3 A. Yes.

4 Q. Nothing additional? It's the same issue?  
5 There's not a different intensity of safety here?

6 A. No. No.

7 CHAIRMAN VOLZ: Okay. Any other  
8 questions for this witness?

9 MR. SCIARROTTA: Not from me.

10 CHAIRMAN VOLZ: Thank you, Mr. Dunn. I  
11 really appreciate you coming down here on such  
12 short notice.

13 MR. DUNN: Meetings in Montpelier are  
14 always good.

15 CHAIRMAN VOLZ: Did we run out of  
16 witnesses? I think we did according to my  
17 scorecard.

18 So I just want to remind -- are there  
19 any other matters that we can take up before  
20 we adjourn? I just would like to remind  
21 people of the briefing schedule which is the  
22 direct briefs are due October 11th and the  
23 reply briefs are due October 25th. Are there  
24 any other matters? Yes.

25 MR. SCIARROTTA: With respect to the  
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1           briefs would it be -- I just would like to see  
2           if the other parties are okay if we agreed to  
3           do the briefs electronically between the  
4           parties and we don't waste any additional  
5           paper. I know the Board would like regular  
6           paper copies.

7           CHAIRMAN VOLZ: We want what our rules  
8           normally require for us, but if the other  
9           parties are agreeable to exchanging e-mails  
10          instead of paper, does anybody object to  
11          electronic?

12          MS. DILLON: We would agree. I just  
13          know that there are I think a handful, perhaps  
14          six parties, that may not be present here  
15          today that have identified they want pleadings  
16          by mail, and I think if we all agreed to send  
17          those parties hard copy by mail of our  
18          pleadings --

19          CHAIRMAN VOLZ: The parties can contact  
20          each other and make arrangements for who wants  
21          paper and who doesn't and do it accordingly.

22          MS. HAYDEN: Did you say contact the  
23          Petitioner?

24          CHAIRMAN VOLZ: No. Contact each other.

25          MS. HAYDEN: Ms. Dillon put this request  
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1 out to the parties a while ago.

2 CHAIRMAN VOLZ: Communicate among  
3 yourselves and decide for yourselves who wants  
4 paper and who doesn't and just do that.

5 Anything else we need to take up? Okay.  
6 I want to thank everybody for all your  
7 cooperation in getting through this and hope  
8 you all have a good weekend. Thank you.  
9 We're adjourned.

10 (Whereupon, the proceeding was  
11 adjourned at 3 p.m.)  
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## C E R T I F I C A T E

I, JoAnn Q. Carson, do hereby certify that I recorded by stenographic means the technical hearing re: Docket Number 7970 at the Capital Plaza, Montpelier Room, State Street, Montpelier, Vermont, on September 20, 2013, beginning at 9:30 a.m.

I further certify that the foregoing testimony was taken by me stenographically and thereafter reduced to typewriting, and the foregoing 187 pages are a transcript of the stenograph notes taken by me of the evidence and the proceedings, to the best of my ability.

I further certify that I am not related to any of the parties thereto or their Counsel, and I am in no way interested in the outcome of said cause.

Dated at Burlington, Vermont, this 22nd day of September, 2013.

---

JoAnn Q. Carson

Registered Merit Reporter

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